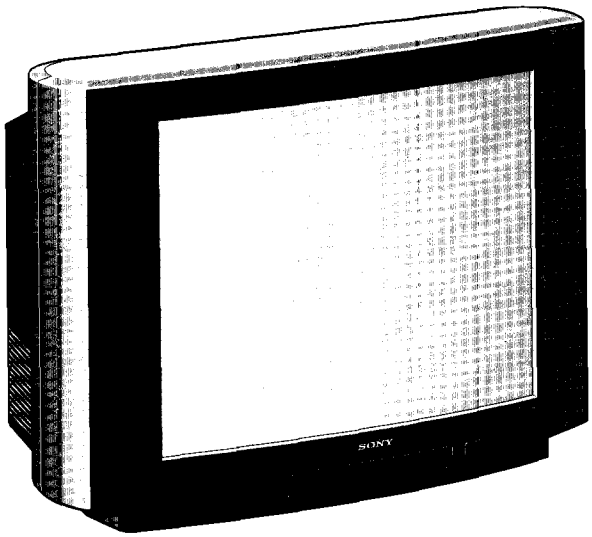
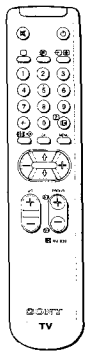
SERVICE MANUAL

BE-3D CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-25C1A	RM-839	Italian	SCC-K05C-A	KV-25C1E	RM-839	Spanish	SCC-K06C-A
KV-25C1B	RM-839	French	SCC-K01C-A	KV-25C1K	RM-839	OIRT	SCC-K08D-A
KV-25C1D	RM-839	AEP	SCC-K07C-A	KV-25C1R	RM-839	OIRT	SCC-K08E-A





MICROFILM

TRINITRON® COLOR TV

SONY®

ITEM MODEL	Television System	Channel Coverage	Colour System
Italian	B/G/H	VHF: E2-E12, S1-S20, A-H, H1,H2 UHF: E21-E69	PAL NTSC3.58/4.43 (video input only)
French	B/G/H, D/K, L, I	L SECAM VHF: F2-F10 UHF: F21-F69 TV CABLE TV (1) VHF: B-Q UHF: S21-S44 PAL B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 PAL I UHF: B21-B69 D/K VHF: R01-R20 UHF: B21-B69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, S42-S46	PAL, SECAM NTSC3.58/4.43 (video input only)
AEP	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: S1-S20 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R20 UHF: B21-B69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, S42-S46	PAL, SECAM NTSC3.58/4.43 (video input only)
Spanish	B/G/H, D/K	PAL B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R20 UHF: B21-B69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, S42-S46	PAL, SECAM NTSC3.58/4.43 (video input only)
OIRT	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R12 UHF: R21-R69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, S42-S46	PAL, SECAM NTSC3.58/4.43 (video input only)

MODEL	25C1A	25C1B	25C1D	25C1E	25C1K 25C1R
Power Consumption	72W	82W	82W	82W	82W

SPECIFICATIONS

Picture Tube — Super Trinitron
Approx. 63 cm (25 inches)
(Approx. 59 cm picture measured diagonally)
110° -deflection

Rear/Front Terminals

[REAR]

1 21-pin Euro connector (CENELEC standard)
- Inputs for audio / video signals
- Inputs for RGB
- Outputs for TV audio and video signals

2/S 2, 21-pin Euro connector (CENELEC standard)
- Inputs for audio / video signals
- Inputs for S video
- Outputs for TV audio and video signals (selectable)

[FRONT]

3 , Video input - phono jack
3 , Audio inputs - phono jacks
3 , S video input - 4 pin DIN
Stereo minijack - headphone jack

Sound output Left/Right	2x5W (RMS) 2x10W (music power)
Dimensions	717x507x486 mm approx.
Weight	Approx. 33.0 kg
Supplied accessories	RM-839 Remote Commander (1) Batteries R6 (2)
Other features	Fastext, TOPTEXT

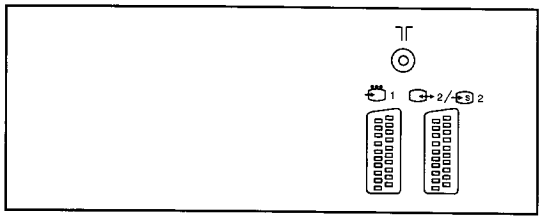
[RM-839]

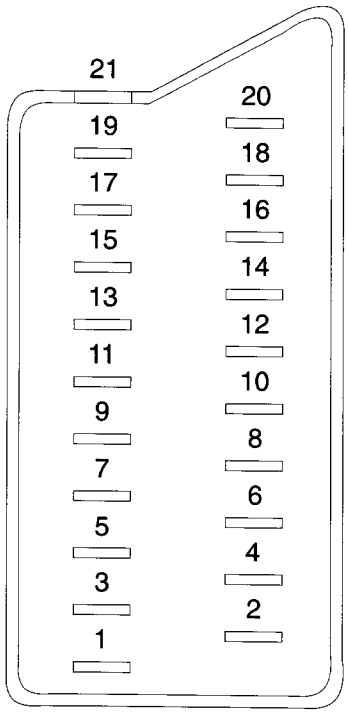
Remote control system	Infrared control
Power requirements	3V dc (2 batteries) R6 (size AA)
Dimensions	Approx. 210x45x24 mm (w/h/d)
Weight	Approx. 90g (Not including battery)

Design and specifications are subject to change without notice.

Item \ Model name	KV-25C1A	KV-25C1B	KV-25C1D	KV-25C1E	KV-25C1K KV-25C1R
PIP	OFF	OFF	OFF	OFF	OFF
MPIP	OFF	OFF	OFF	OFF	OFF
Scart 1	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON
Front in (3)	ON	ON	ON	ON	ON
Scart 4	OFF	OFF	OFF	OFF	OFF
AKB in 16:9 mode	ON	ON	ON	ON	ON
TXT	ON	ON	ON	ON	ON
FLOF	ON	ON	ON	ON	ON
TOP	ON	ON	ON	ON	ON
Norm B/G/H	ON	ON	ON	ON	ON
Norm I	OFF	ON	OFF	OFF	OFF
Norm D/K	OFF	ON	ON	ON	ON
Norm AUS	OFF	OFF	OFF	OFF	OFF
Norm L	OFF	ON	OFF	OFF	OFF
Norm SAT	OFF	OFF	OFF	OFF	OFF
Norm M	OFF	OFF	OFF	OFF	OFF
Language Preset	Italian	French	German	Spanish	OIRT

21 pin connector (1, 2 / S 2)





Pin No.	1	2	4	Signal	Signal Level
1	○	○	○	Audio output B (Right)	Standard level : 0.5V rms Output impedance : Less than 1k ohms*
2	○	○	○	Audio input B (Right)	Standard level : 0.5V rms Output impedance : More than 10k ohms*
3	○	○	○	Audio output A (Left)	Standard level : 0.5V rms Output impedance : Less than 1k ohm*
4	○	○	○	Ground (Audio)	
5	○	○	○	Ground (Blue)	
6	○	○	○	Audio input A (Left)	Standard level : 0.5V rms Output impedance : Less than 10k ohm*
7	○	●	●	Blue input	0.7 ± 3dB, 75 ohms, positive
8	○	○	○	Function select (AV control)	High state (9.5 - 12V) : Part mode Low state (0 - 2V) : TV mode Input impedance : More10k ohms Input capacitance : Less than 2nF
9	○	○	○	Ground (Green)	
10	○	○	○	Open	
11	○	●	●	Green	
12	○	○	○	Open	
13	○	○	○	Ground (Red)	
14	○	○	○	Ground (Blanking)	
15	○	—	—	Red input	0.7 ± 3dB, 75 ohms, positive
	—	○	○	(S signal) croma input	0.7 ± 3dB, 75 ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1 - 3V) Low state (0 - 0.4V) Input impedance : 75 ohms
17	○	○	○	Ground (Video output)	
18	○	○	○	Ground (Video input)	
19	○	○	○	Video output	1V ± 3dB, 75ohms, positive sync : 0.3V (-3 + 10dB)
20	○	—	—	Video input	1V ± 3dB, 75ohms, positive sync : 0.3V (-3 + 10dB)
	—	○	○	Video input Y (S signal)	1V ± 3dB, 75ohms, positive sync : 0.3V (-3 + 10dB)
21	○	○	○	Common ground (plug, sheild)	

○ Connected ● Not Connected (Open) * at 20Hz - 20kHz

Pin No.	Signal	Signal Level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75 ohm, positive Sync. 0.3V -3 + 10dB
4	C (S signal) input	0.3V ± 3dB 75ohm, positive Sync.

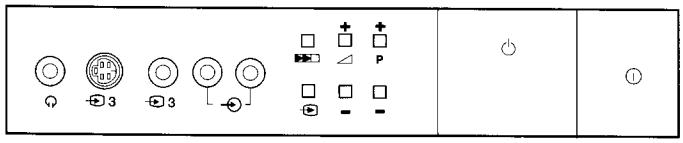


TABLE OF CONTENTS

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

ATTENTION

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

ATTENTION !!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE.
LE CHÁSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

SAFETY-RELATED COMPONENT WARNING!!

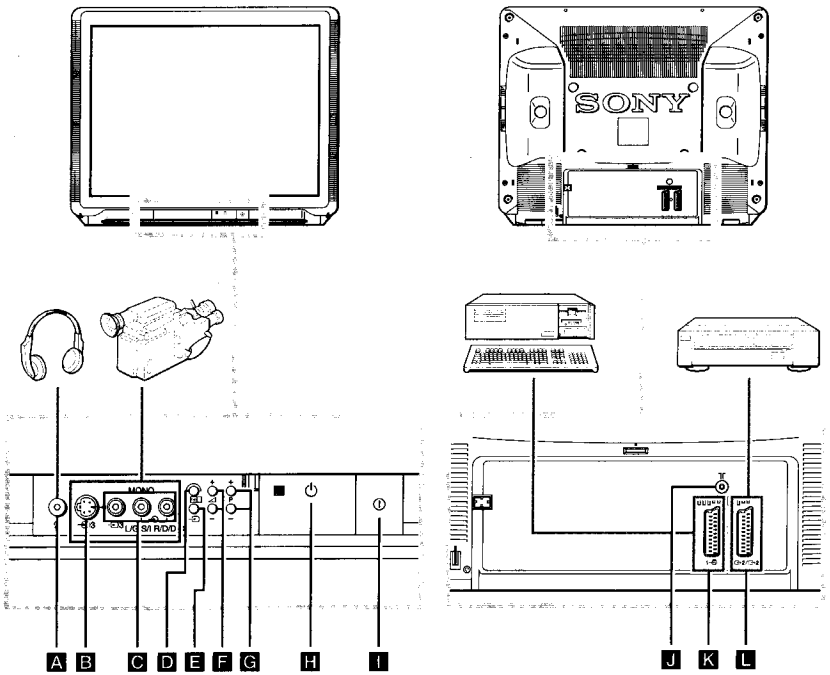
COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND, IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

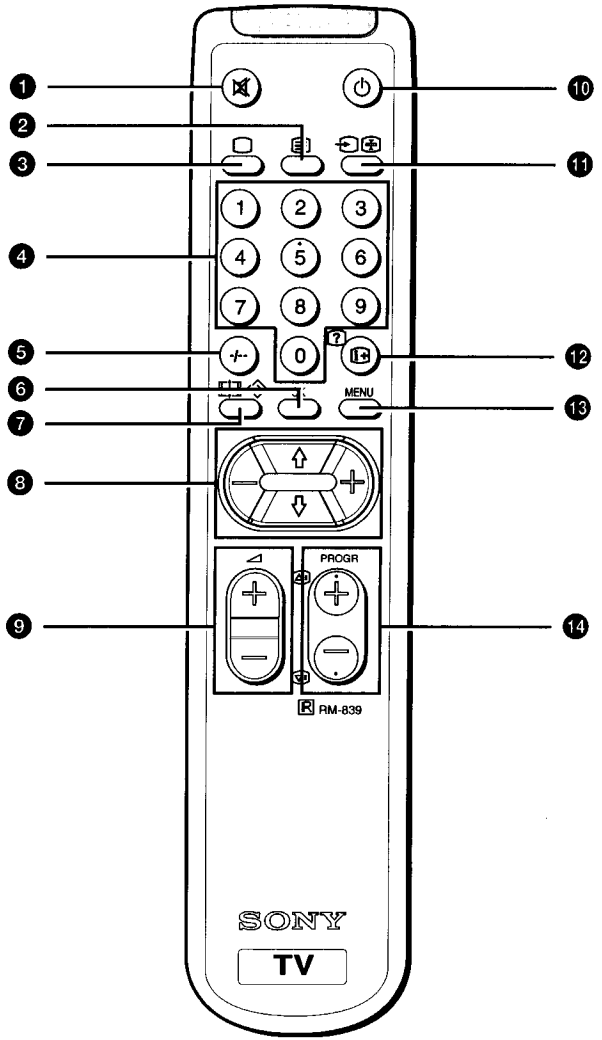
ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÈS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES VUES EXPLOSÉES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE PUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1 GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.





Overview

This section briefly describes the controls and the buttons on the TV set and on the Remote Commander. Please open the flap at the front of the instruction manual for illustrations of the TV set and the Remote Commander. Letters in boxes refer to the buttons on the TV set, numbers in circles to the buttons on the Remote Commander. For more information, refer to the page numbers given next to each description.

TV buttons and Terminals

Reference and Symbol	Name	Refer to Page
Front of the set		
A	Headphones jack	4
B 3	S video input jack	29
C 3, 3	Audio/video input jacks	29
D	Automatic Preset button	11
E	Input mode button	13
F +/-	Volume control	12
G P +/-	Programme button	12
H	Standby mode indicator	12
I	Main power switch	12
Rear of the set		
J	Aerial socket	10
K 1	21 pin Euro connector	29
L 2/ 2	21 pin Euro connector	29

Remote Commander Operation

Reference and Symbol	Name	Refer to Page
1	Muting on/off button	12
2	Teletext button	13
3	TV power on/TV mode button	12, 13
4 1, 2, ... 9, 0	Number buttons	12
5 - / - -	Double digit entering button	12
6 OK	OK (Confirmation) button	14
7 /	Screen format button Teletext: Favourite pages button	12, 28
8	Menu control	14
9 +/-	Volume control button	12
10	Standby button	12
11 /	Input mode button Teletext: Freezing the subpage	13, 27
12 /	On-screen display button Teletext: reveal button	12, 27
13 **MENU**	Menu on/off button	14
14 **PROGR +/-**	Programme buttons Teletext: Page up/page down buttons	12, 13

Step 1

Connecting the Aerial

(If you connect a VCR, skip to step 2)

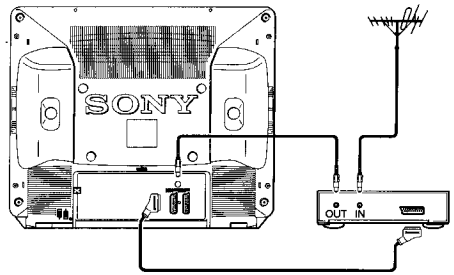
Insert the aerial plug tightly into the aerial socket ⊓ J. Use a good-quality aerial cable (not supplied), corresponding to the relevant regulations.

Step 2

Connecting a VCR

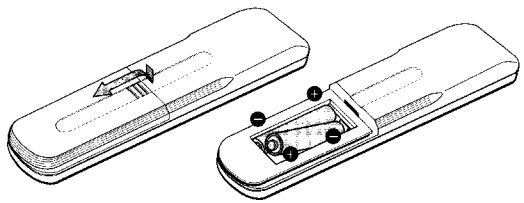
We recommend that you tune in the VCR signal to programme number "0". For details, see "Presetting Channels Manually" on page 16.

See "Connecting Optional Equipment" on page 29 for more information.



Step 3

Inserting the Batteries Into the Remote Commander



Respect your environment! Dispose of used batteries in an environmentally friendly way.

Step 4

Presetting Channels Automatically

With this function, the TV can automatically search and store up to 100 different channel numbers.

If you prefer manual presetting, refer to "Presetting Channels Manually" on page 16.

1 Plug into mains.
Press the power switch ⏻ I on the TV set.

2 Press and hold the button ▸▸□ D on the TV set until the automatic menu is displayed and the search starts.

After all available channels are stored, the normal TV picture is shown.

Note: Channels are automatically stored as follows;

KV-25X1U/29X1U	KV-25X1L/29X1L
Programme 1 BBC1	Programme 1 RTE1
Programme 2 BBC2	Programme 2 RTE2
Programme 3 ITV	Programme 3 BBC1
Programme 4 CH4 or S4C	Programme 4 BBC2
	Programme 5 ITV
	Programme 6 CH4 or S4C

TV Operation

This section explains functions used whilst watching TV. Most operations are carried out using the remote commander (numbers in circles). All basic functions are also available on the TV set (letters in boxes). Open the flap at the front of the Instruction Manual to see the illustrations of the Remote Commander and the TV set.

TV Operation

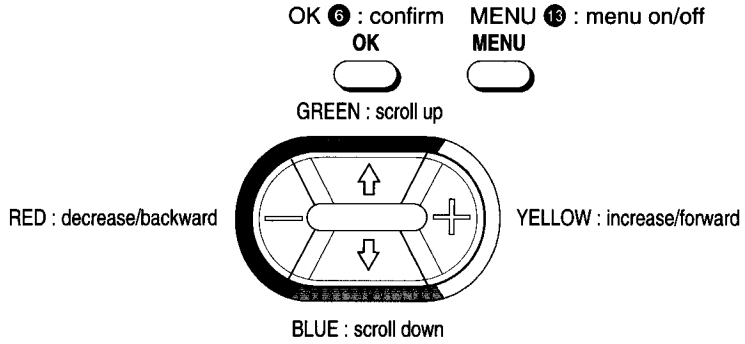
To	Press
Switch on	⏻ ❶ on TV
Switch off temporarily	⏻ ⑩ TV is now in standby mode and ⏻ H indicator on TV lights up.
Switch on from standby mode	▭ ❸, PROGR +/- ⑭ G or any number button ❹.
Switch off completely	⏻ ❶ on TV To save energy, switch off your TV completely when TV is not in use.
Select programmes	PROGR +/- ⑭ G or number buttons ❹ For double digit number, press -/- - ❺ then the number e.g. For 23, press -/- - ❺ then 2 and 3.
Display on screen indications	ⓘ ⑫. Press again to make the indications disappear.
Adjust the volume	+ or - ❾ F
Mute the sound	✕ ❶. Press again to restore the sound.
View programmes in 16:9 mode	❼. Press again to return to 4:3 mode.

TV Operation (continued)

To	Press
View video input picture (see page 30 for detailed information)	⏎ ⑪ E repeatedly until the desired video input appears. Press ▭ ❸ to restore the TV picture.
View teletext (see page 27 for detailed information)	
Switch on	☰ ❷
Select a page	three number buttons ❹ or ☰▲ ⑭ (for next page) or ☰▼ ⑭ (for previous page).
Use fastext	Blue, Green, Red or Yellow ❽.
Switch off	▭ ❸

Adjusting and Setting the TV Using the Menu

You can adjust and set various functions on the TV using the following remote commander buttons:

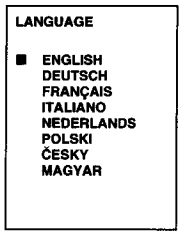


Choosing the Menu Language

This function enables you to change the language of the menu screens.

1 Press power switch ⏻ **I** on the TV. If the standby indicator ⏻ **H** on the TV is lit, press ▭ ❸ or a number button ❹ on the Remote Commander.

2 Press the MENU button ⓭ on the remote commander.



3 Press blue or green ❽ to select the language you want then press yellow ❽.

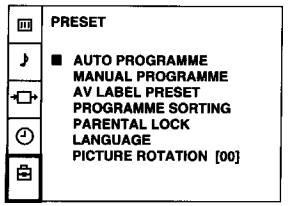
4 Press the MENU button ⓭ to restore the normal TV picture.

Presetting Channels Automatically

You may have already preset the channels automatically by using the method shown on page 11. You can also preset channels automatically by using the remote commander as follows:

1 Press the MENU button ⓭.

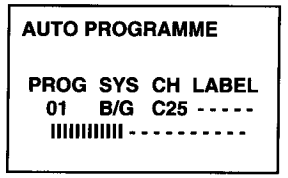
2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.



3 Press blue or green ❽ to select 'AUTO PROGRAMME'.

4 Press and hold yellow ❽ until the automatic menu is displayed and the search starts.

After all available channels have been preset, the normal TV picture is shown.

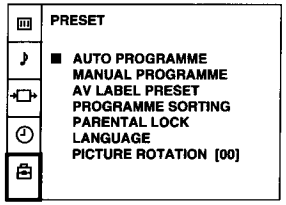


Presetting Channels Manually

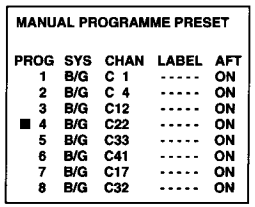
This function enables you to preset channels one by one to different programme numbers. This is also convenient for allocating programme numbers to various video input sources.

1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.



3 Press blue or green ❽ to select 'MANUAL PROGRAMME' then press yellow ❽.



4 Press blue or green ❽ to select on which programme number you want to preset a channel then press yellow ❽.

5 Press blue or green ❽ to select the TV broadcast system 'I' or a video input source (AV1,AV2 ...) then press yellow ❽.

6 **(This step 6 is only for KV-25X1L/29X1L)**
Press blue or green ❽ to select 'C' (for terrestrial channels) or 'S' (for cable channels) then press yellow ❽.

7 Select the first number digit of 'CHAN' then the second number digit of 'CHAN' with the number buttons ❹ on the remote commander
or
Press blue or green ❽ to search for the next available channel number.

8 If you want to store the channel number, go to step 9. If not, select a new channel number using the number buttons ❹ on the remote commander or press blue or green ❽ to resume the search.

9 Press OK ❻.

10 Repeat steps 4 to 9 to preset other channels.

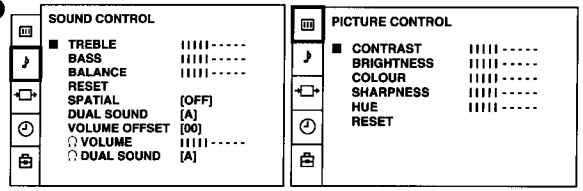
11 Press the MENU button ⓭ to restore the normal TV picture.

Adjusting the Picture and Sound

Although the picture and sound are adjusted at the factory, you can adjust them to suit your own taste.

1 Press the MENU button ⓭.

2 Press blue or green ❽ to select ▭ for picture control or ♪ for sound control then press yellow ❽.



3 Press blue or green ❽ to select the desired item then press yellow ❽.

4 Press red or yellow ❽ to alter the item then press OK ❻.
For the effect of each control, see the following tables.

5 Repeat steps 3 and 4 to adjust the other items.

6 Press the MENU button ⓭ to restore the normal TV picture.

PICTURE CONTROL	Effect
Contrast	Lower —— I —— Higher
Brightness	Darker —— I —— Brighter
Colour	Less —— I —— More
Sharpness	Softer —— I —— Sharper
Hue	Greenish —— I —— Reddish (NTSC signals only)
Reset	Resets picture to the factory preset levels.

SOUND CONTROL	Effect
Treble	Less —— I —— More
Bass	Less —— I —— More
Balance	Left —— I —— Right
Reset	Resets sound to the factory preset levels.
Spatial	Acoustic sound effect.
Dual Sound	A: Left channel —> B: Right channel —> stereo —> mono
Volume Offset	Presets the volume level for individual programmes. -12 —— 0 —— +12
∩ Volume	Adjusts the headphone volume.
∩ Dual Sound	Presets the headphone channels. A: Left channel —> B: Right channel —> stereo —> mono

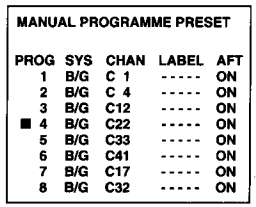
Manual Fine-Tuning

Normally, the automatic fine-tuning (AFT) function is operating.
If the picture is distorted however, you can manually fine-tune the TV to obtain a better picture reception.

1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.

3 Press blue or green ❽ to select 'MANUAL PROGRAMME' then press yellow ❽.



4 Press blue or green ❽ to select the programme number which corresponds to the channel you want to manually fine-tune.

5 Press yellow ❽ repeatedly until the AFT position changes colour..

6 Press blue or green ❽ to change the frequency of the channel from -15 to +15.

7 Press OK ❻.

8 Repeat steps 4 to 7 to fine-tune other channels.

9 Press the MENU button ⓭ to restore the normal TV picture.

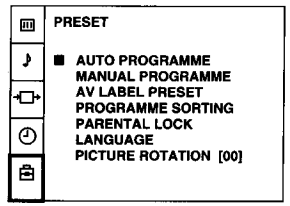
Sorting Programme Positions

This function enables you to move channels to different programme numbers.

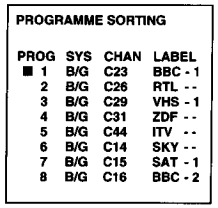
1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.

3 Press blue or green ❽ to select 'PROGRAMME SORTING' then press yellow ❽.



4 Press blue or green ❽ to select the channel you want to move to another programme number then press yellow ❽.



5 Press blue or green ❽ to select the programme number to which you want to move the channel selected in step 4 then press yellow ❽.

6 Repeat steps 4 to 5 if you wish to move other channels to different programme numbers.

7 Press the MENU button ⓭ to restore the normal TV picture.

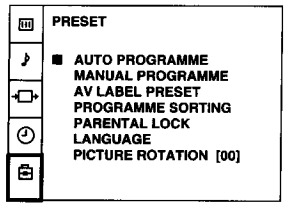
Using Parental Lock

This function enables you to prevent undesirable broadcasts from appearing on the screen. We suggest you use this function to prevent children from watching programmes which you consider unsuitable.

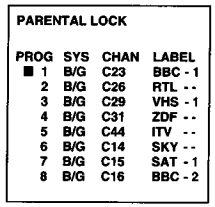
1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol on the menu screen then press yellow ❽.

3 Press blue or green ❽ to select 'PARENTAL LOCK' then press yellow ❽.



4 Press blue or green ❽ to select the channel you want to block then press yellow ❽. The symbol appears before the programme number to indicate that this channel is now blocked.



5 Repeat step 4 if you wish to block other channels.

6 Press the MENU button ⓭ to restore the normal TV picture.

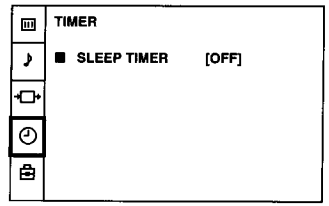
Note: To unblock, press yellow ❽ after selecting the channel to unblock in the 'PARENTAL LOCK' menu.

Using the Sleep Timer

This function enables you to select a time period after which the TV automatically switches into standby mode.

1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol on the menu screen then press yellow ❽.



3 Press yellow ❽.

4 Press red or yellow ❽ to set time delay and press OK ❻.

OFF 0:30 1:00 1:30 ..... 3:30 4:00

One minute before the TV switches into standby mode, a message is displayed on the screen.

5 Press the MENU button ⓭ to restore the normal TV picture.

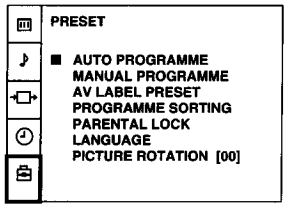
Skipping Programme Positions

This function enables you to skip unused channels when selecting programme numbers with the PROGR+/- buttons. However, you can still watch the skipped channel(s) by using the number buttons.

1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.

3 Press blue or green ❽ to select 'MANUAL PROGRAMME' then press yellow ❽.



4 Press blue or green ❽ to select the channel you want to skip then press yellow ❽.

5 Press blue or green ❽ until '- - -' appears in the 'SYS' position.

MANUAL PROGRAMME PRESET

PROG	SYS	CHAN	LABEL	AFT
1	B/G	C 1	-----	ON
2	B/G	C 4	-----	ON
3	B/G	C12	-----	ON
4	- - -	C22	-----	ON
5	B/G	C33	-----	ON
6	B/G	C41	-----	ON
7	B/G	C17	-----	ON
8	B/G	C32	-----	ON

6 Press OK ❻.

7 Repeat steps 4 to 6 to skip other channels.

8 Press the MENU button ⓭ to restore the normal TV picture.

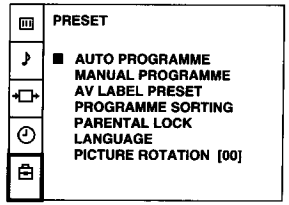
Captioning a Station Name

Names for channels are usually automatically taken from teletext if available. You can however name a channel or an input video source using up to five characters (letters or numbers).

1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol 🧰 on the menu screen then press yellow ❽.

3 Press blue or green ❽ to select 'MANUAL PROGRAMME' then press yellow ❽.



4 Press blue or green ❽ to select the channel you wish to caption then press yellow ❽ repeatedly until the first element of the 'LABEL' position is highlighted.

5 Press ❽ blue or green to select a letter or number and press yellow ❽ (select '-' for a blank). Select other characters in the same way.

MANUAL PROGRAMME PRESET

PROG	SYS	CHAN	LABEL	AFT
1	B/G	C 1	-----	ON
2	B/G	C 4	-----	ON
3	B/G	C12	-----	ON
4	B/G	C22	A----	ON
5	B/G	C33	-----	ON
6	B/G	C41	-----	ON
7	B/G	C17	-----	ON
8	B/G	C32	-----	ON

6 After selecting all the characters, press OK ❻.

7 Repeat steps 4 to 6 to caption names for other channels.

8 Press the MENU button ⓭ to restore the normal TV screen.

Most TV channels broadcast information via teletext. The index page of the broadcaster (usually page 100) gives you information on how to use the service.
Make sure you use a TV channel with a strong signal, otherwise teletext errors may occur.

Switching Teletext On and Off

1 Select the channel which carries the teletext service you wish to view.

2 Press ⊜ ❷ to display teletext.
If no teletext signal is broadcast, the indication P100 is displayed on a black screen.

3 Input three digits for the page number using the number buttons ❹.
The page counter searches for the page and after some seconds the page is displayed.

4 Press ▢ ❸ to return to the normal TV picture.

Using Other Teletext Functions

To	Press
Access the next or preceding teletext page	⊜▲ ⓮ for the next page or ⊜▼ ⓮ for the preceding page
Mix the mode	⊜ ❷ when in teletext mode. Now the teletext page is superimposed on the TV programme. Press again to return to the normal teletext display.
Freeze a teletext subpage	⊜ ⓫. Press once again to cancel.
Reveal hidden information (eg: answers to a quiz)	⊜ ⓬. Press once again to cancel.

Favourite page system

You can store up to four of your favourite teletext pages per Teletext service. In this way you have quick access to the pages you frequently use.

Storing pages

1 Use the number buttons ❹ to select the page you would like to store.

2 Press ◈ ❼ twice.
The colour prompts at the bottom of the screen flash.

3 Press red, green, blue or yellow to store the selected page.
The page is now stored on this colour.

Repeat steps 1 to 3 for the other 3 pages.

Displaying the Favourite Pages

1 Press ◈ ❼.

2 Press blue, green, red or yellow to select the desired page.

Make sure you press ◈ ❼, otherwise the normal Fastext facility operates.

Using Fastext

(only available, if the TV station broadcasts Fastext signals)

With Fastext you can access pages with one key stroke . When Fastext is broadcast, a colour-coded menu appears at the bottom of the screen. The colours of this menu correspond to the red, green, yellow and blue colours on the Remote Commander.

Press the Remote Commander colour button that corresponds to the colour-coded menu. The selected page is displayed after some seconds.

Connecting Optional Equipment

There is a wide range of optional equipment you can connect to your TV. Refer to the illustrations on the front flap page of this manual.

Symbol	Acceptable input signals	Available output signals
3, 3 B S 3 C	Normal audio/video and S video	No output
1 K	Normal audio/video and RGB	Audio/video from TV tuner
2/ 2 L	Normal audio/video and S video	Audio/video from selected source

About S video input

Video signals may be separated into Y (luminance) and C (chrominance) signals. Separating the two signals prevents interference and thus improves the picture quality.

Notes on connections:

If the picture or sound is distorted, move the VCR away from the TV.

When connecting a monaural VCR, connect only the white jack to both the TV and VCR.

Selecting Input and Output Signals

This section explains how to select the output signal from 2/ 2 L and how to select and view the input. You can use direct access buttons 11 E to select the input or the menu system to select input and output.

Selecting With Direct Access Buttons

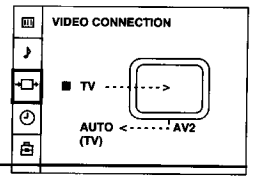
Press 11 E repeatedly.
Press 3 to restore the normal TV picture.

Symbol on the screen	Input Signal
1	Audio/video through Euro AV connector K
	RGB through Euro AV connector K
2	Audio/video through Euro AV connector L
S 2	S video through Euro AV connector L
3	Audio/video through the phono jacks C
S 3	S video through the phono jacks B

Selecting With the Video Connection Menu

1 Press the MENU button 19.

2 Press blue or green 8 to select for "VIDEO CONNECTION" then press yellow 8.



3 Press blue or green to select input or output then press yellow 8.

4 Press blue or green repeatedly to select the desired input or output source then press OK 6.

5 Press the MENU button 19 to restore the normal TV picture.

Note: If you select 'AUTO' for output, the output source automatically becomes the same as the desired input source.

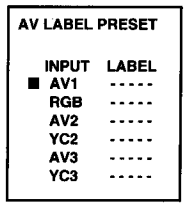
Using AV Label Preset

This function enables you to label the input sources using up to five characters (letters or numbers).

1 Press the MENU button ⓭.

2 Press blue or green ❽ to select the symbol on the screen then press yellow ❽.

3 Press blue or green ❽ to select 'AV LABEL PRESET' then press yellow ❽.



4 Press blue or green ❽ to select the desired input source then press yellow ❽.

5 Press blue or green ❽ to select a letter or number then press yellow ❽ (select '-' for a blank).
Select other characters in the same way.

6 After selecting all the characters, press OK ❻.

7 Repeat steps 4 to 6 to label other input sources.

8 Press the MENU button ⓭ to restore the normal TV screen.

Troubleshooting

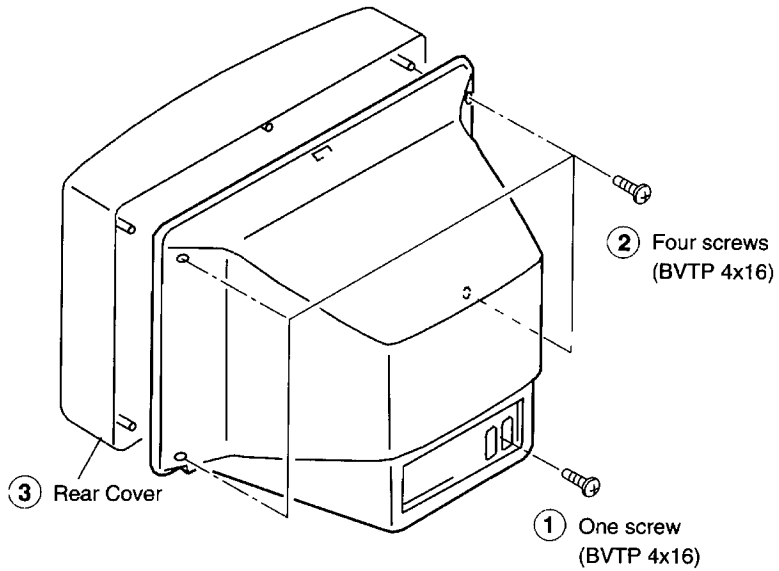
Here are some simple solutions to the problems which affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	• Plug the TV in. • Press ⏻ I on the TV. (If ⏻ indicator H is on, press ▭ ❸ or a programme number ❹ on the Remote Commander.) • Check the aerial connection. • Check if the selected video source is on. • Turn the TV off for 3 or 4 seconds then turn it on again using ⏻ I.
Poor or no picture (screen is dark), but good sound	• Press MENU ⓳ to enter the 'PICTURE CONTROL' menu and adjust 'Contrast', 'Brightness' and 'Colour'.
Poor picture quality when watching an RGB video source.	• Press ⇥ ⓫ E repeatedly to select .
Good picture but no sound	• Press + ❾ F. • If is displayed on the screen, press ❶.
No colour for colour programmes	• Press MENU ⓭ to enter the 'PICTURE CONTROL' menu, select 'Reset' then press OK ❻.
Remote Commander does not function.	• Replace the batteries.

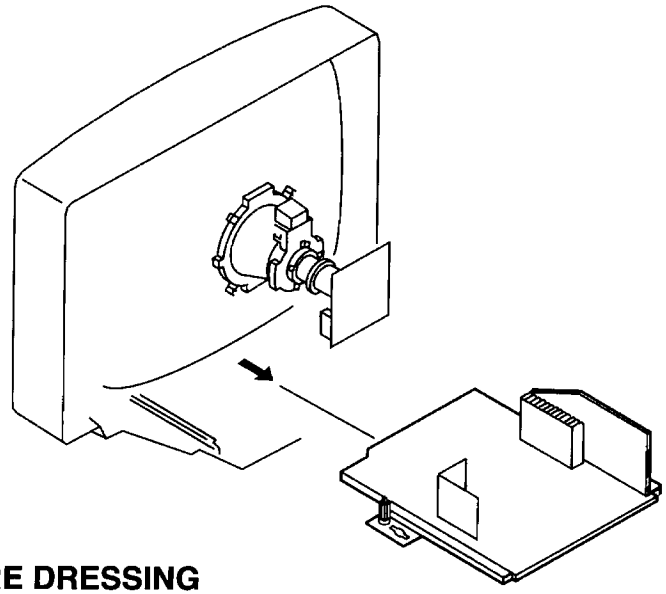
If you continue to have problems, have your TV serviced by qualified personnel. Never open the casing yourself.

SECTION 2
DISASSEMBLY

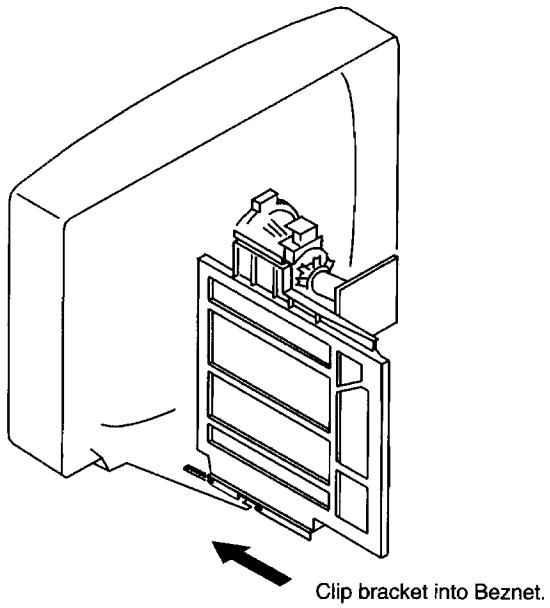
2-1. REAR COVER REMOVAL



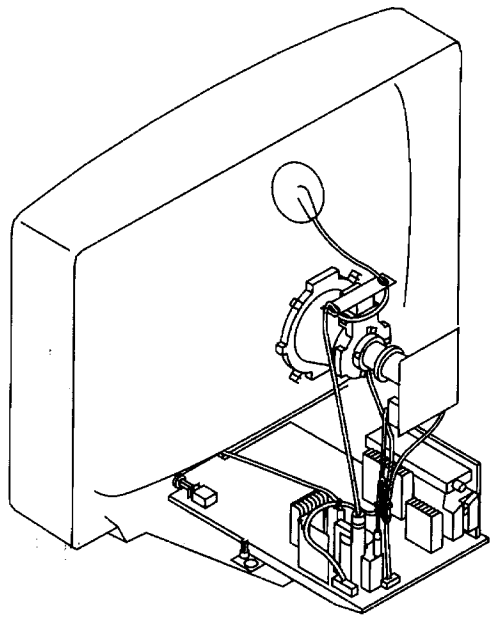
2-2. CHASSIS ASSY REMOVAL



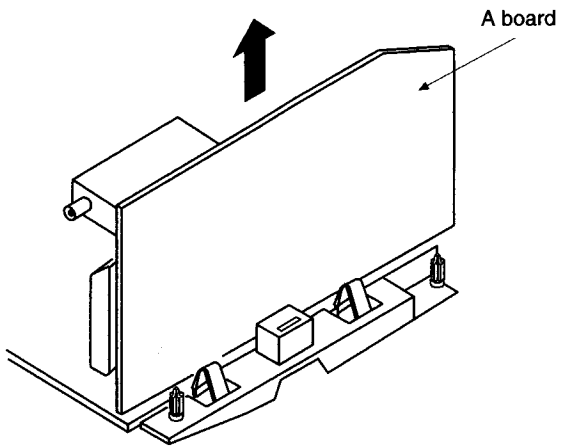
2-3. SERVICE POSITION



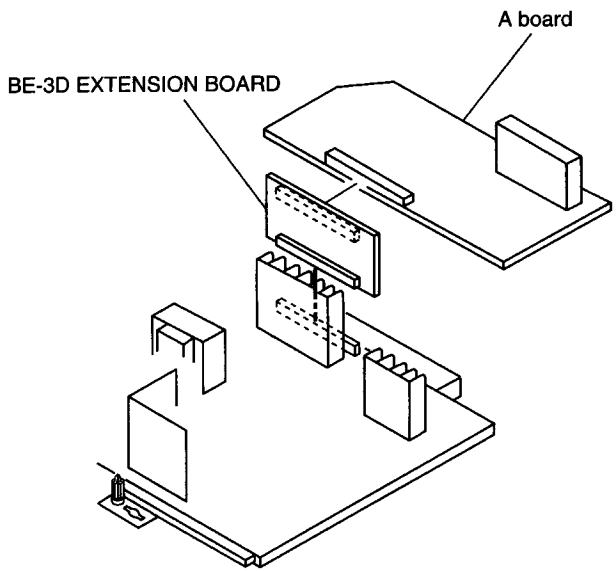
2-4. WIRE DRESSING



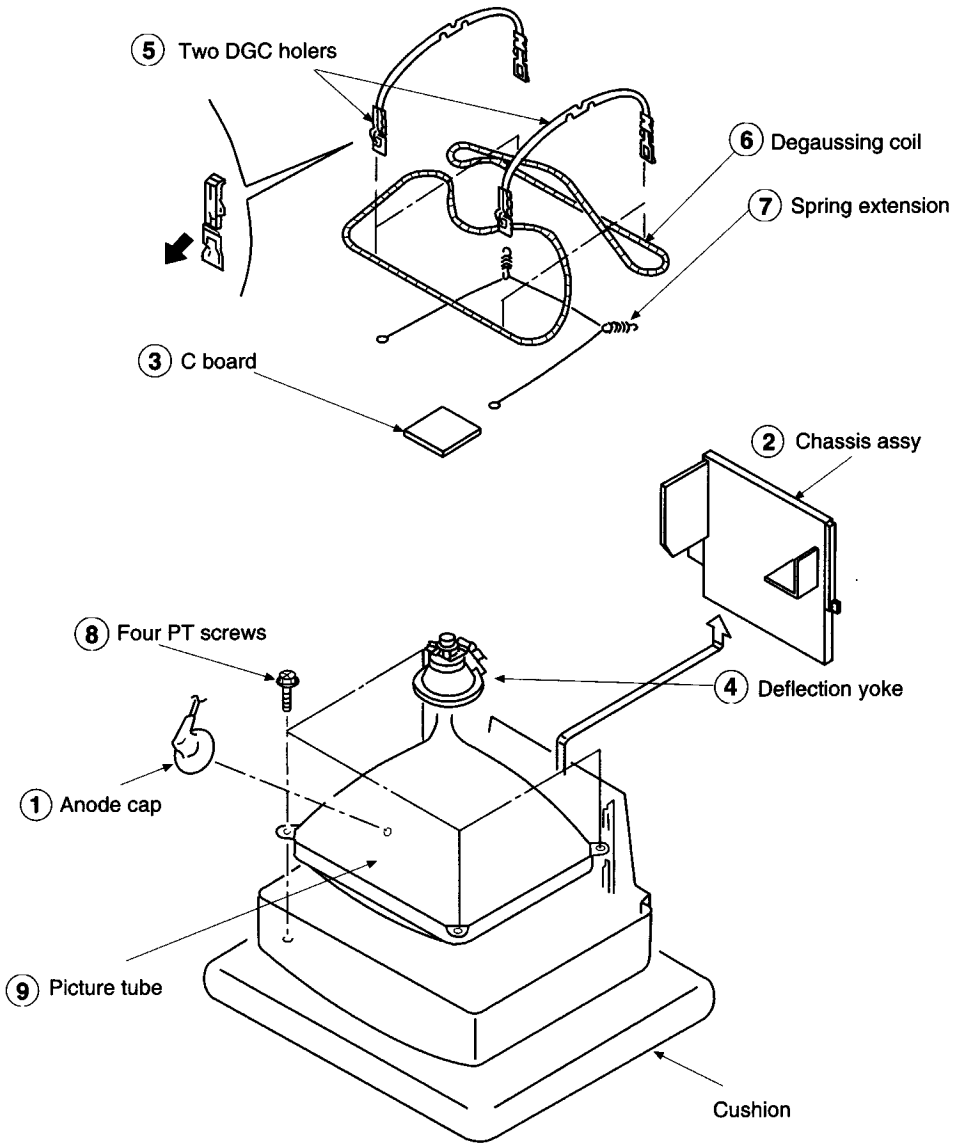
2-5. A BOARD REMOVAL



2-6. EXTENSION BOARD



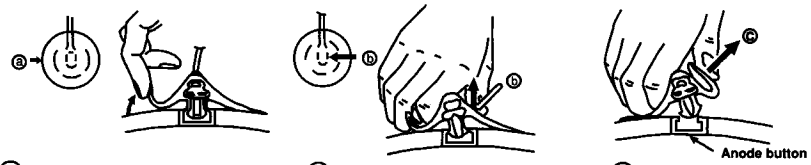
2-7. PICTURE TUBE REMOVAL



• REMOVAL OF ANODE-CAP

Note: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

* **REMOVING PROCEDURES.**



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ

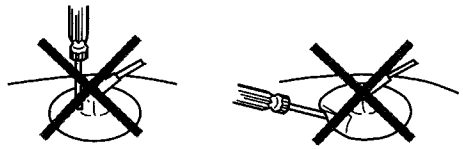
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ

• HOW TO HANDLE AN ANODE-CAP

① Don't damage the surface of anode-cap with sharp shaped material !

② Don't press the rubber hardly not to hurt inside of anode-caps !
A metal fitting called as shatter-hook terminal is built into the rubber.

③ Don't turn the foot of rubber over hardly !
The shatter-hook terminal will stick out or damage the rubber.



SECTION 3
SET - UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches to these settings :

◑ Contrast ..... 80% (or remote control normal)
☼ Brightness 50%

- Carry out the following adjustments in this order :

1. Beam landing
2. Convergence
3. Focus
4. White balance

Note: Testing equipment required.
1. Color bar/pattern generator
2. Degausser
3. DC power supply
4. Digital multimeter
5. Oscilloscope

Preparation:
- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input the white signal with the pattern generator.
   CONTRAST } normal
   BRIGHTNESS }
2. Set the pattern generator raster signal to red.
3. Move the deflection yoke forward and adjust with the purity control so that the red is at the centre and the blue and the green take up equally sized areas on each side. (See Fig. 3-1 - 3-3)
4. Move the deflection yoke forward and adjust so that the entire screen becomes red. (See Fig. 3-1)
5. Switch the raster signal to blue, then to green and verify the condition.
6. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
7. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Fig. 3-4)

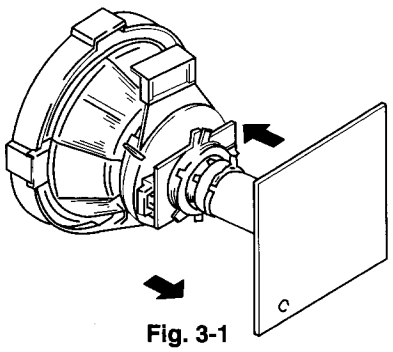


Fig. 3-1

Fig. 3-2

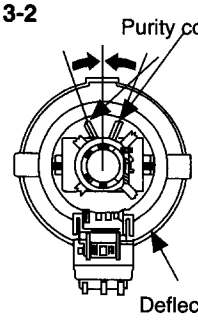
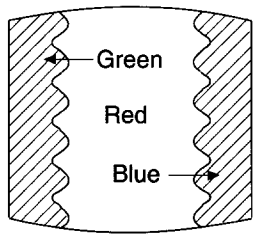


Fig. 3-3



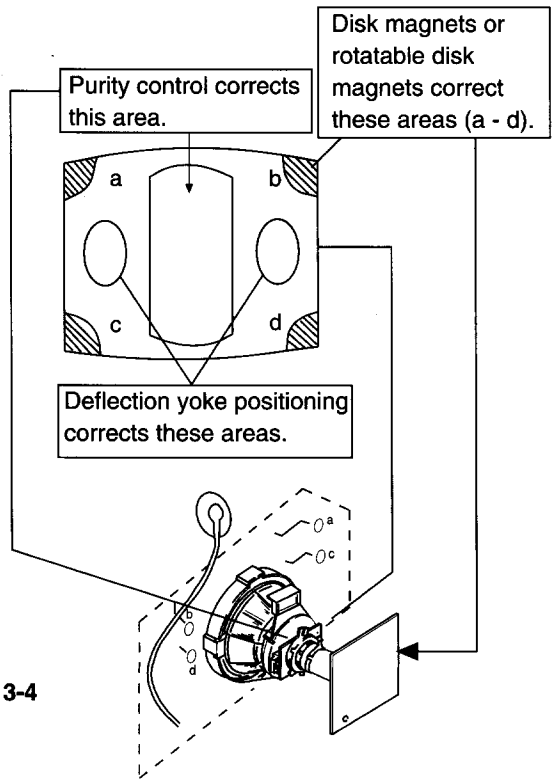


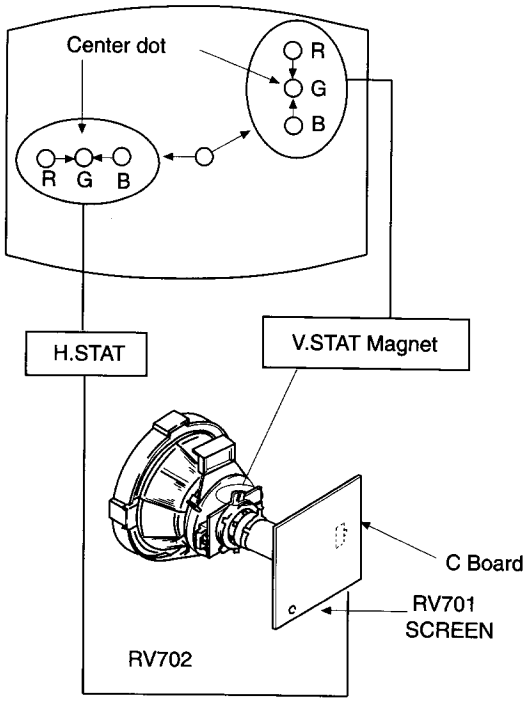
Fig. 3-4

3-2. CONVERGENCE

Preparation:

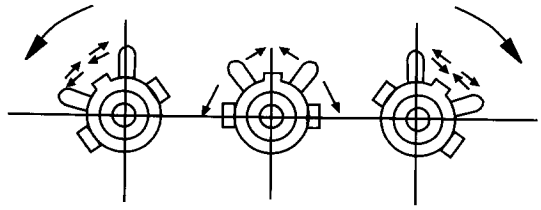
- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide a dot pattern.

(1) Horizontal and vertical static convergence

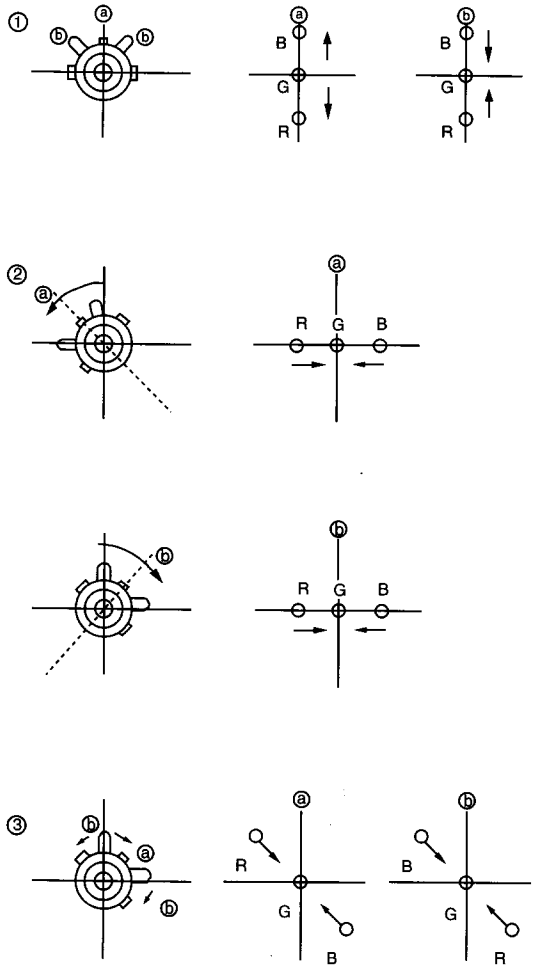


1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the centre of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the centre of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the centre of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other)

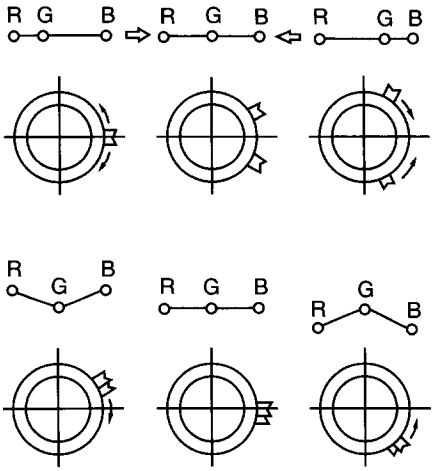
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.

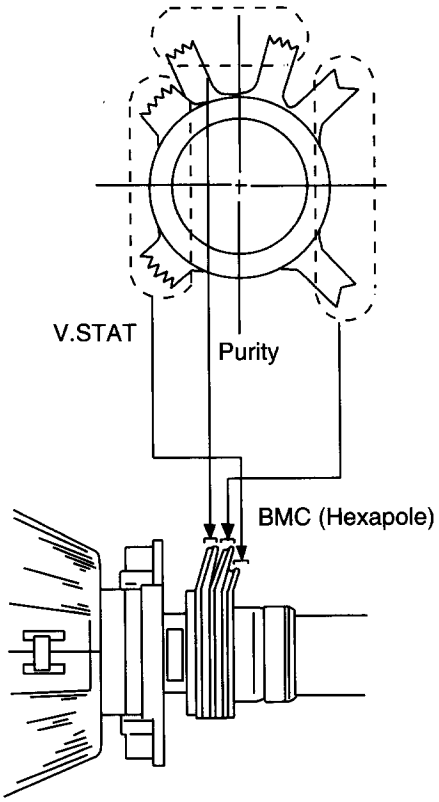


4. If the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the red, green, and blue points move as shown below.



- Operation of BMC (Hexapole) Magnet





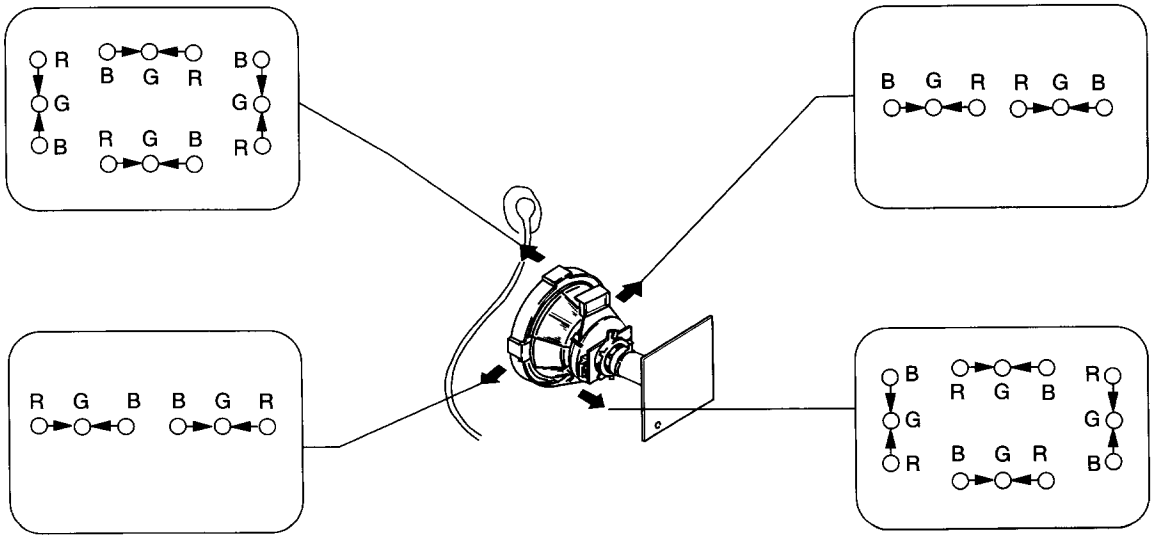
- The respective dot position resulting from moving each magnet interact, so be sure to perform adjustment while tracking.
  Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the centre of the screen (by moving the dots in the horizontal direction).

(2) Dynamic convergence adjustment.

Preparation:

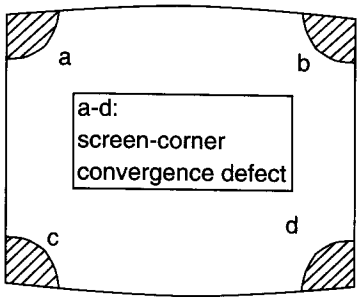
- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

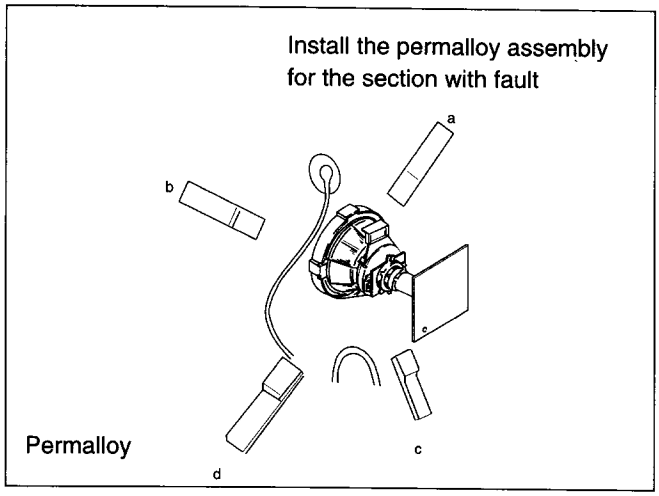
1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Re-install the deflection yoke spacer.



(3) Screen corner convergence.

If you are unable to adjust the corner convergence properly, correct them with the use of permalloy assemblies.





3-3. WHITE BALANCE

G2 Setting

1. Switch the set into AV mode (apply no signal to the AV connectors).
2. Connect a Volt Meter to Test Point 1 on the A board.
3. Adjust RV01 to obtain a voltage of 3.0V ±0.3V.

White balance adjustment

1. Input an all white signal from the pattern generator.
2. Enter into the service mode.
3. Enter into Picture Adjustment service menu.
4. Select sub-contrast and adjust to 7.
5. Select the Green Drive and adjust so that the white balance becomes optimum.
6. Select the Blue Drive and adjust so that the white balance becomes optimum.
7. Press the TV button to return to TV operation.

PICTURE ADJUSTMENT

AFC mode	1
REF position	3
SCP BGR	1
SCP BGF	1
Trap Fo	7
Sub contrast	Adj
Sub colour	Adj
Sub brightness	Adj
Sub hue	Adj
Green drive	Adj
Blue drive	Adj
Green cutoff	Adj
Blue cutoff	Adj
Gamma	0
Pre / overshoot	0
Y delay	5

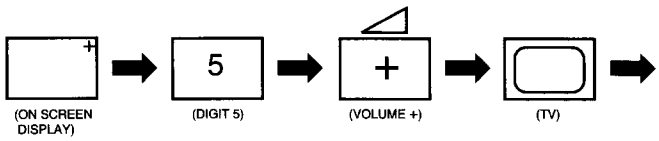
SECTION 4
CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied remote commander RM-839.

HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch of the set and enter into standby mode.
2. Press the following sequence of buttons on the Remote Commander.



"TT-- " will appear in the top right corner of the screen. Other status information will also be displayed.

3. Press MENU on the commander to obtain the following menu on the screen.

TEST MENU

> Picture adjustment
Geometry
Wide
MSP
IC status
Current TV status

4. Move to the corresponding adjustment using the ↓ button on the commander.
5. Press the + button to enter the selected adjustment.
6. Turn off the power to quit the service mode when adjustments are completed.

PICTURE ADJUSTMENT

AFC mode	1
REF position	3
SCP BGR	1
SCP BGF	1
Trap Fo	7
Sub contrast	Adj
Sub colour	Adj
Sub brightness	Adj
Sub hue	Adj
Green drive	Adj
Blue drive	Adj
Green cutoff	Adj
Blue cutoff	Adj
Gamma	0
Pre / overshoot	0
Y delay	5

GEOMETRY ADJUSTMENT

V Size	Adj
V Position	Adj
S Correction	Adj
V Linearity	Adj
H Size	Adj
H Position	Adj
Pin Amp	Adj
Pin Phase	Adj
AFC Bow	Adj
AFC Angle	Adj
EHT V	Adj
EHT H	Adj
Corner Pin	Adj

WIDE

V Aspect	43
V Scroll	31
Upper V Lin	0
Lower V Lin	0
Left Blanking	1
Right Blanking	11

MSP	
AGC ON/OFF	ON
Constant gain CDB	0
FM prescale FMP	36
Zwei mono-st WHI	36
Zwei st-mono WLO	18
Zwei mono-bi WMH	36
Zwei bi-mono WLO	18
Time zwei WML	41
Fawct limit	10
Fawct soll init FAW	12
Fawer tol	2
Nicam Err Max CCT	10
Nicam Err Min	0
Nicam Prescale NIP	97
Time Nicam	31
Carrier mute CRM	OFF
Audio clock ACO	HIZ
Scart prescale	25
Scart volume	64

IC STATUS (CXA2000 / CXA2040)	
CXA2000	
H lock	1
IKR	1
VNG	0
X-RAY	0
Colour system	3
CV1 Sync	1
CXA2040	
Sync sep	1
S1 mode pin	01
S2 mode pin	01
TUNER	
Tuner status	01101011

TV STATUS	
Text system	C TEXT/TV TEXT
Dolby	NO/YES
Text language set	WEST/EAST/RUSSIAN
Menu language set	WEST/EAST/RUSSIAN
Destination	B/D/U/K/L/E/A/R
Scart 16:9	OFF/ON
RGB priority	OFF/ON
Ageing	OFF/ON
Size	29/25
Colour trap sw	SECAM/ALL
Velocity mod	ON/OFF
AFT STATUS	WINDOW/HIGH/LOW

SUB BRIGHTNESS ADJUSTMENT

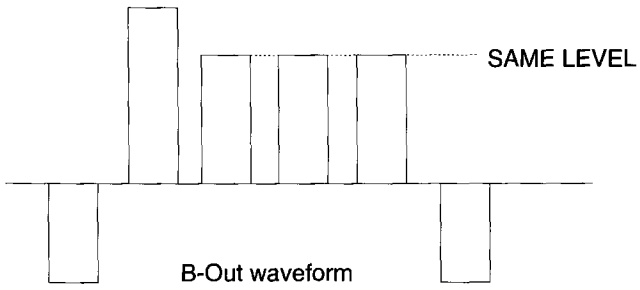
1. Input a Phillips pattern.
2. Set the picture control to minimum.
3. Enter into the Picture Adjustment Service Menu.
4. Adjust the Sub-Brightness data so that there is barely a difference between the 0 IRE and 10 IRE signal.

SUB CONTRAST ADJUSTMENT

1. Input a video that contains a small 100% area on a black background.
2. Set the picture control to maximum.
3. Connect an oscilloscope to pin 3 of CN301 (A board).
4. Enter into the Picture Adjustment Service Menu.
5. Adjust the Sub-contrast data to obtain a black to white amplitude of 2.50 volts.

SUB COLOUR ADJUSTMENT

1. Receive a PAL Colour Bar video signal.
2. Connect an oscilloscope to pin 3 of CN301 (A board).
3. Enter into the Picture Adjustment Service Menu.
4. Adjust the sub colour data so that cyan, magenta and blue colour bars are of equal height.



NOTE: The data shown in the TV STATUS table is dependant on destination, screen size and country.

SYSTEM B/G, D/K, I & L I.F ADJUSTMENT

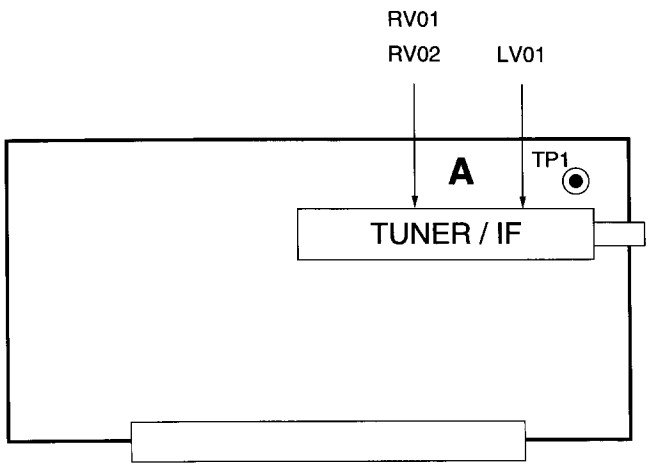
1. Input an off air signal of between 60-100dBuV / 75 ohm terminated, via the tuner socket.
2. Enter into the I.F adjustment service mode (i.e. " TT 59 ") to fix the I.F frequency to 38.9 MHz.
3. Enter into the service mode and select "Current TVStatus".
4. Adjust the I.F coil (LV01) until the "AFT Status" indicates a " Window " condition.

SYSTEM L BAND 1 I.F ADJUSTMENT

1. Input an off air signal of between 60-100dBuV / 75 ohm terminated, via the tuner socket.
2. Enter into the I.F adjustment service mode (i.e. " TT 59 ") to fix the I.F frequency to 34.2 MHz.
3. Enter into the service mode and select "Current TVStatus".
4. Adjust the RV02 until the "AFT Status" indicates a " Window " condition.

TUNER AGC ADJUSTMENT

1. Receive a signal of 63dBuV / 75 ohm terminated via the tuner socket.
2. Measure the voltage at test point 1 (A board).
3. Adjust RV01 to obtain a voltage of 3.0V ± 0.3V.



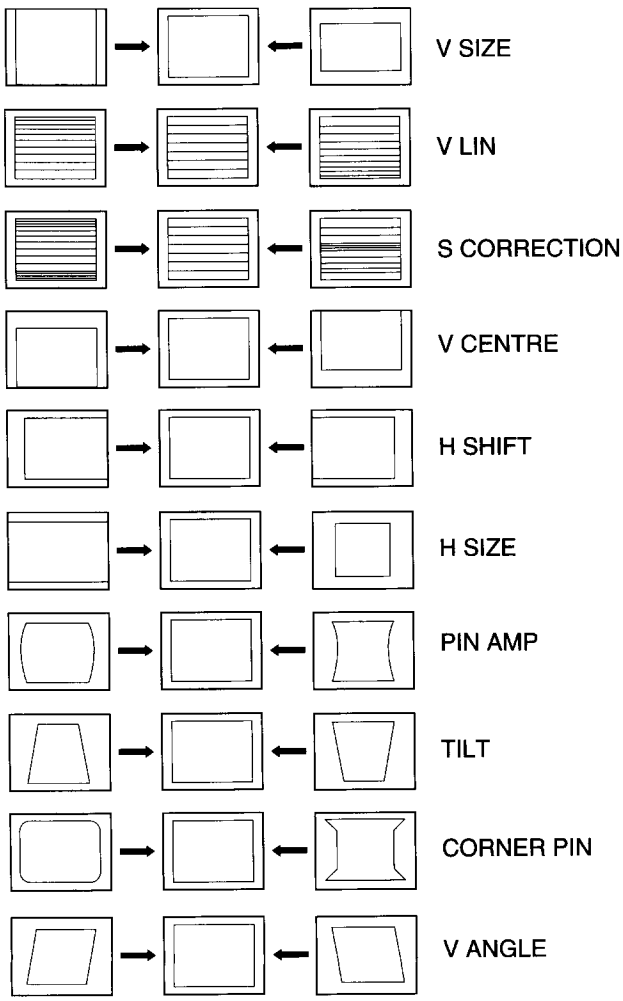
- A Board component side -

DEFLECTION SYSTEM ADJUSTMENT

1. Enter into the Geometry Adjustment Service Menu.
2. Select and adjust each item in order to obtain the optimum image.

GEOMETRY ADJUSTMENT

V Size	Adj
V Position	Adj
S Correction	Adj
V Linearity	Adj
H Size	Adj
H Position	Adj
Pin Amp	Adj
Pin Phase	Adj
AFC Bow	Adj
AFC Angle	Adj
EHT V	Adj
EHT H	Adj
Corner Pin	Adj



4-2. TEST MODE 2:

Is available by pressing Test button twice, OSD " TT " appears. The functions described below are available by pressing the two numbers. To release the Test mode 2, press 0 twice, or switch the TV into stand-by mode.

00	Switch test mode 2 off
01	Picture maximum
02	Picture minimum
03	Volume 30%
04	Set service menu mode
05	Set production menu mode
06	Volume 80%
07	Set ageing condition
08	Set shipping condition
09	Language reset
10	No function
11	Adjustment without OSD
12	Dummy
13	Display TV configuration
14	Forced AV 6:9 mode
15	Reset LPM from ROM data
16	copy LPM to reset memory
17	Preset label for AV sources
18	RGB priority on/off
19	Clear all preset labels
20	No function
21	Sub contrast
22	Sub colour
23	Sub brightness
24	Set destination = U
25	Set destination = D
26	Set destination = B
27	Set destination = K
28	Set destination = L
29	Set destination = E
30	No function
31	Set destination =A
32	Dummy
33	Auto AGC
34	Dummy
35	Manual AGC adjust

36-40	Dummy
41	Re-initialise NVM
42	Production use only
43	Initialise geometry settings
44	Initialise all favourite pages = 100
45	Channel locks = off
46	Dealer commander mode
47	Default MSP settings
48	Restore NVM test byte
49	Delete NVM test byte
50-60	No function
61	Turn on Dolby Pro Logic mode
62	White noise to left speaker
63	White noise to right speaker
64	White noise to centre speaker
65	White noise to rear speaker
66	Set standard stereo mode
67	Set Pro Logic normal mode
68	Set Pro Logic wide mode
69	Set Pro Logic phantom mode
70	No function
71	Picture rotation on/off
72	Dolby register settings
74	No function
75	Reset picture colour balance
76	Reset picture geometry
77	Reset sound settings
78	Reset error codes in the NVM
79-99	No function

4-3. BE-3D SELF DIAGNOSTIC SOFTWARE

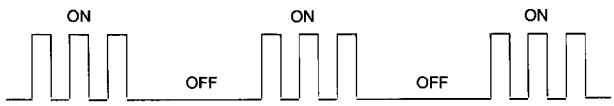
The identification of errors within the BE-3D chassis is triggered in 1 of 2 ways :- 1: Bus busy or 2: Device failure to respond to IIC. In the event of one of these situations arising the software will first try to release the bus if busy (Failure to do so will report with continuous flashing LED) and then communicate with each device in turn to establish if a device is faulty. If a device is found to be faulty the relevant device number will be displayed through the led (Series of flashes which must be counted) See Table 1, non fatal errors are reported with this method.

Table 1

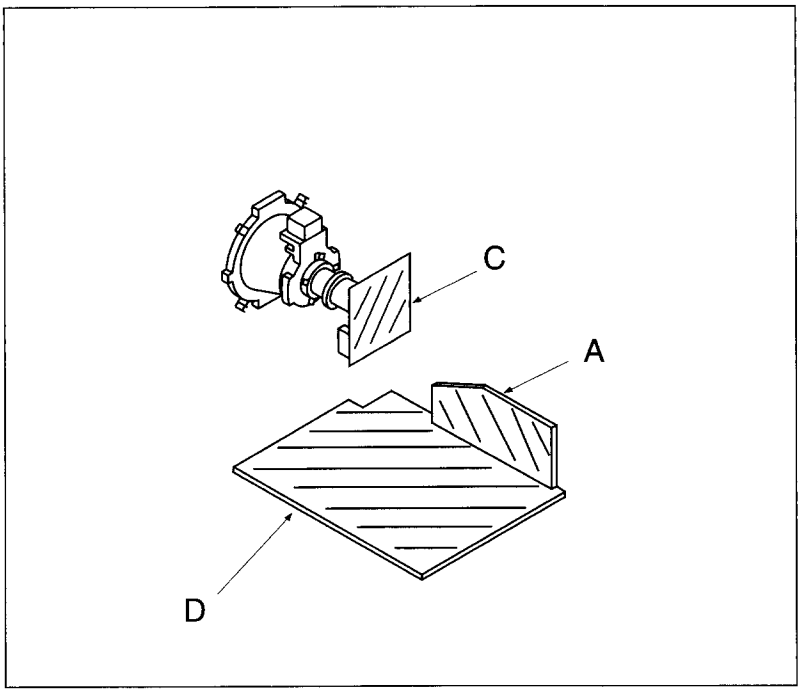
ERROR	LED ERROR COUNT
Protection circuit trip < ANY TIME >	02
IIC SCL LOW < POWER UP ONLY >	03
IIC SDA LOW < POWER UP ONLY >	04
IIC SDA & SCL LOW < POWER UP ONLY >	05
Jungle/Choroma controller no acknowledge < POWER UP ONLY >	06
Video Switch no acknowledge < POWER UP ONLY >	07
Tuner no acknowledge	08
MSP no acknowledge	09
NVM no acknowledge	10
M3L TXD LOW < POWER UP ONLY >	11
M3L RXD LOW < POWER UP ONLY >	12
M3L ENABLE LOW < POWER UP ONLY >	13
M3L TXD & RXD LOW < POWER UP ONLY >	14
Compact Text test fail < POWER UP ONLY >	15
AV switch cannot power on reset	16
Cannot initialise jungle	17
NVM acknowledge fail after initialisation	18
Multiple devices with no acknowledge < POWER UP ONLY >	19
Compacttext run-time failure	20
AVSWITCH response failure after power up	21
JUNGLE/CHROMA controller response failure after power up	22
CompactText does not respond	23

Flash Timing Example : e.g. error number 3.

Stby LED



5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.
  k = 1000 , M = 1000K
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5 mm
Rating electrical power ¼ W

- : nonflammable resistor.
- △ : internal component.
- ▭ : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊥ : earth - ground.
- ⏚ : earth - chassis.
- ⧦ : no mounted.

Note : The components identified by shading and marked ! are critical for safety. Replace only with the part number specified.

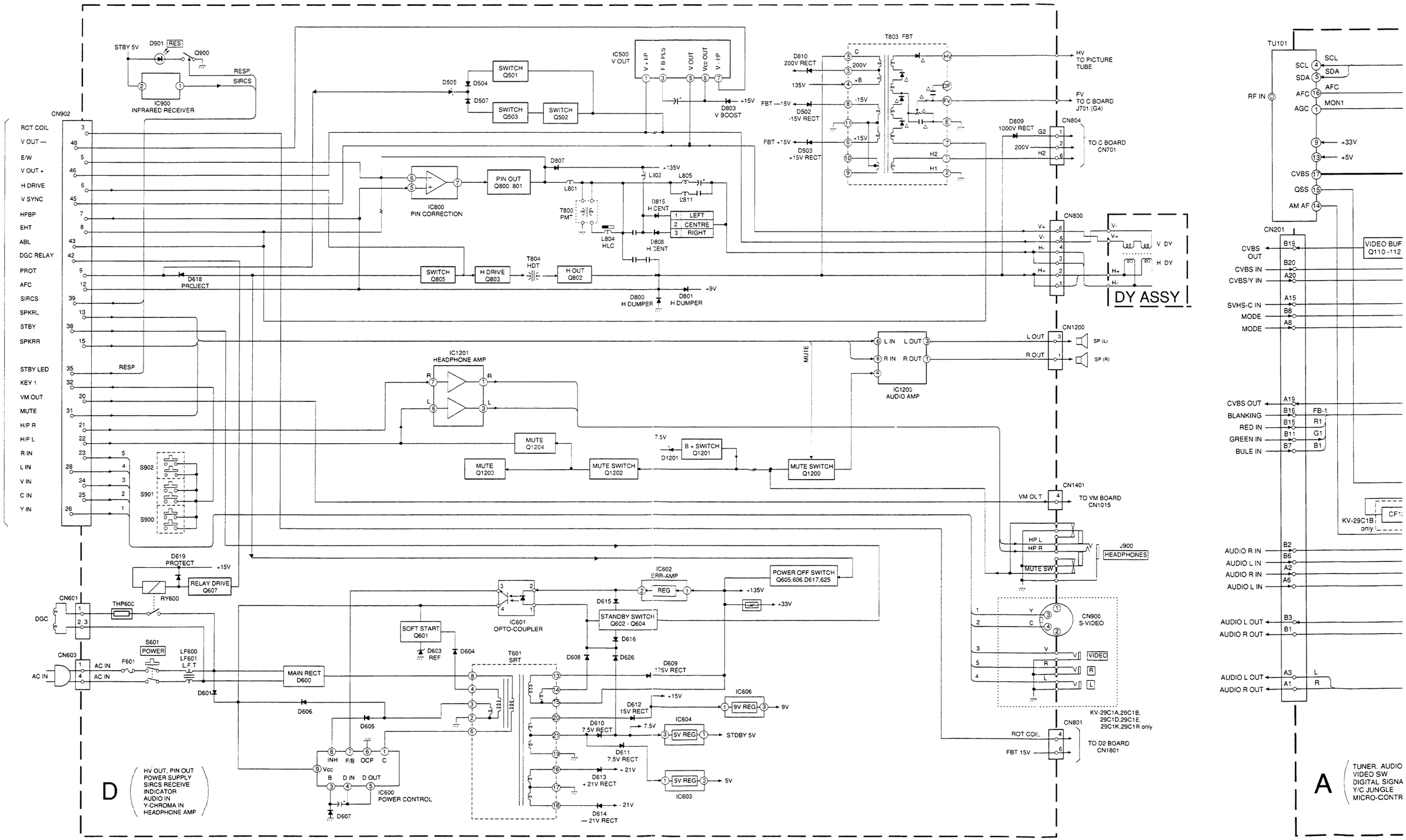
Note : Les composants identifies par une trame et une marque ! sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

Reference information

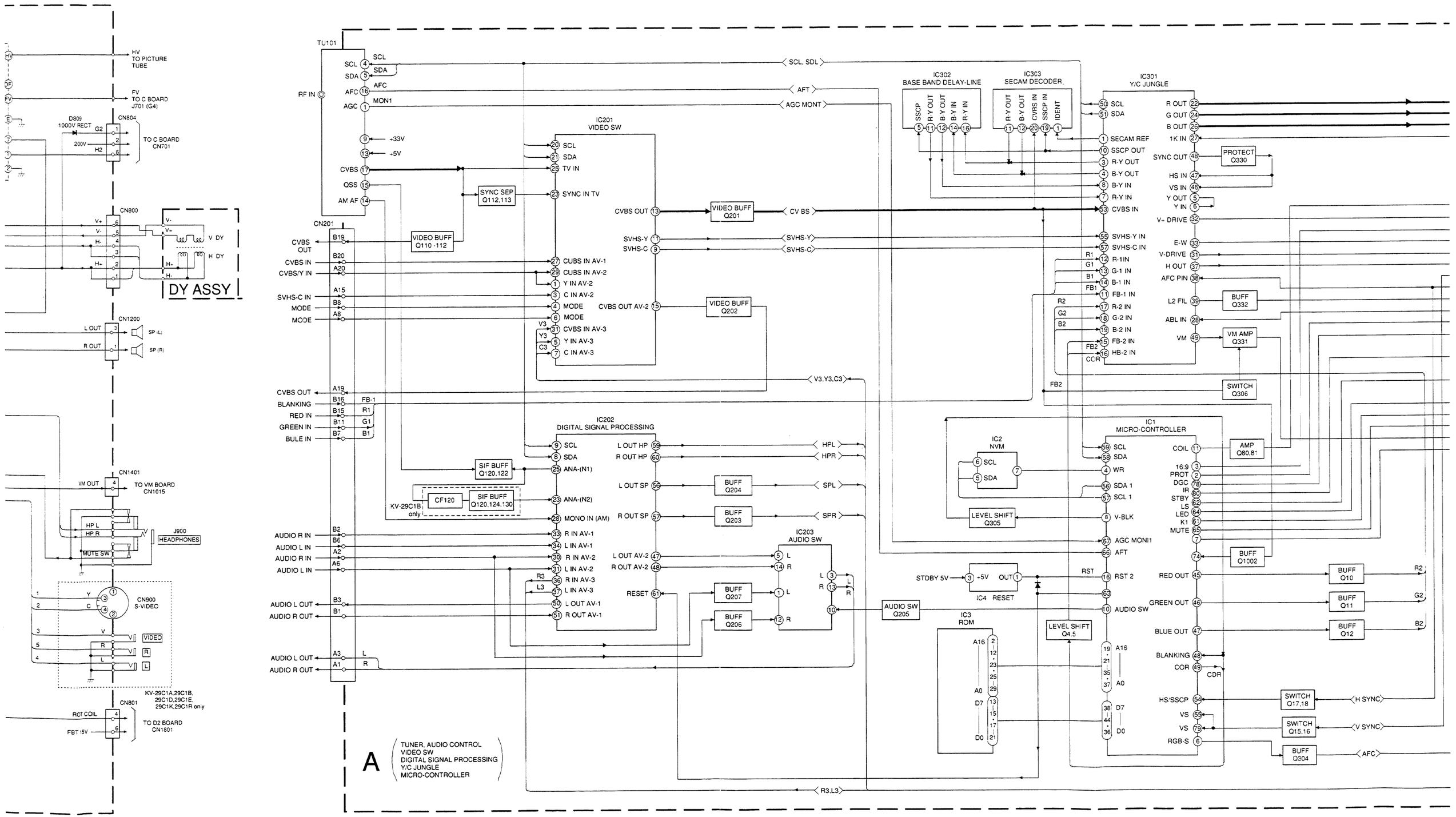
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ※	ADJUSTABLE RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

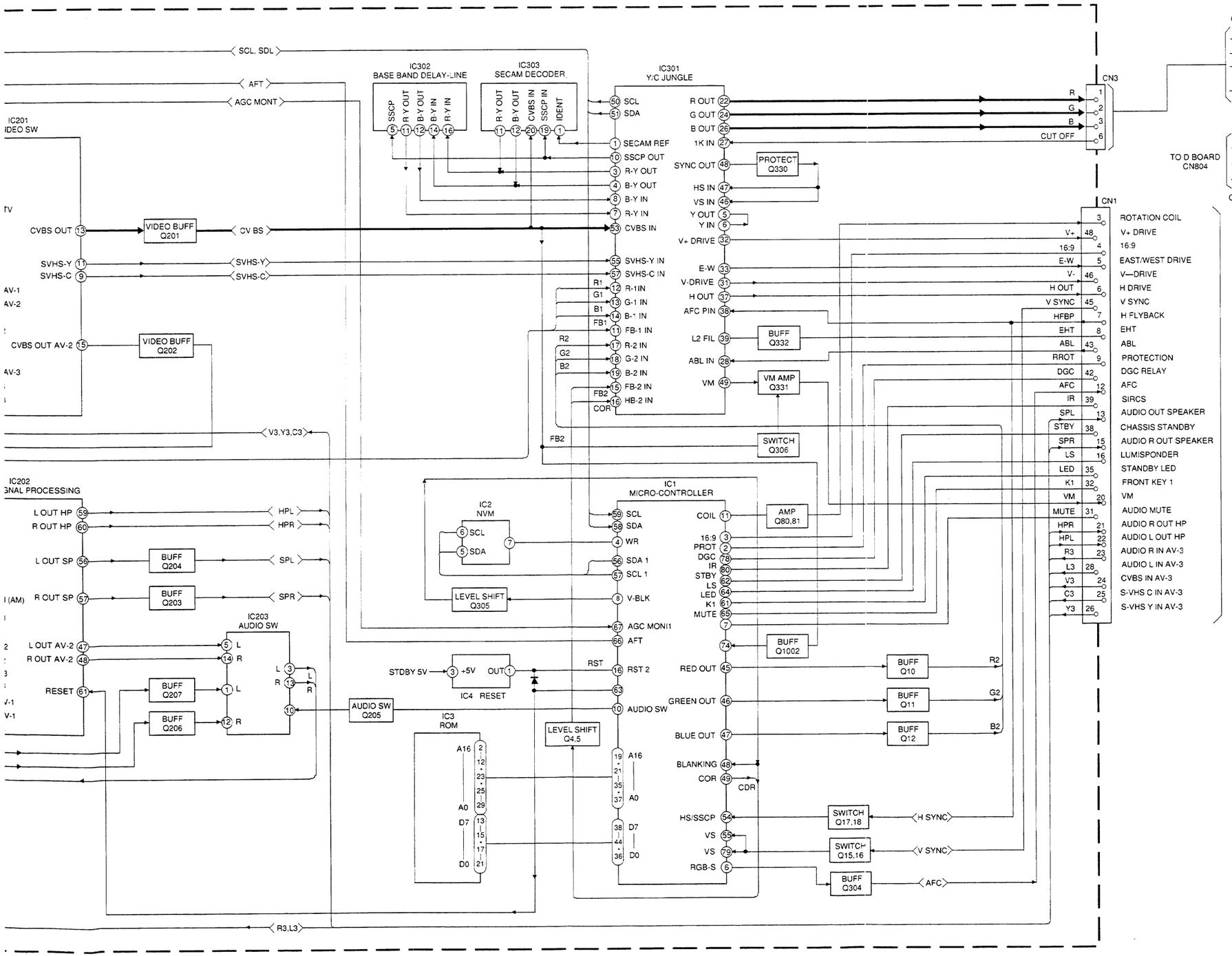
- Readings are taken with a colour-bar signal input.
- Readings are taken with 10MΩ digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- Circled numbers are waveform references.
- ▬ : B+ bus.
- ▒ : signal path. (RF)

5-1. BLOCK DIAGRAM (1)

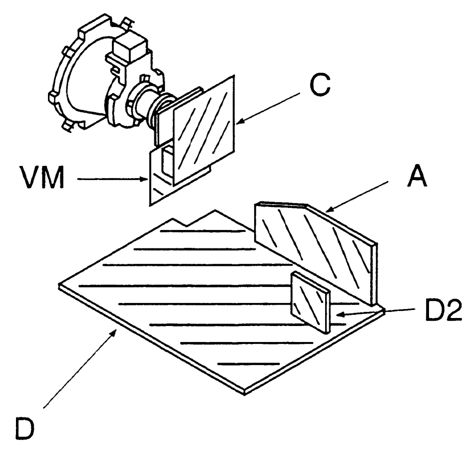


BLOCK DIAGRAM (2)




SCL, SDL
AFT
AGC MONT
IC201
IDEO SW
TV
CVBS OUT 13
VIDEO BUFF Q201
CV BS
SVHS-Y 11
SVHS-C 9
SVHS-Y
SVHS-C
AV-1
AV-2
CVBS OUT AV-2 15
VIDEO BUFF Q202
AV-3
V3,Y3,C3
IC202
GNAL PROCESSING
L OUT HP 59
R OUT HP 60
HPL
HPR
L OUT SP 56
BUFF Q204
SPL
I (AM) R OUT SP 57
BUFF Q203
SPR
IC203
AUDIO SW
L OUT AV-2 47
R OUT AV-2 48
RESET 61
BUFF Q207
BUFF Q206
AUDIO SW Q205
R3,L3
IC302
BASE BAND DELAY-LINE
SSCP
R Y OUT
B Y OUT
B Y IN
R Y IN
IC303
SECAM DECODER
R-Y OUT
B-Y OUT
CVBS IN
SSCP IN
IDENT
IC301
Y/C JUNGLE
SCL
SDA
SECAM REF
SSCP OUT
R-Y OUT
B-Y OUT
B-Y IN
R-Y IN
CVBS IN
SVHS-Y IN
SVHS-C IN
R-1IN
G-1 IN
B-1 IN
FB-1 IN
R-2 IN
G-2 IN
B-2 IN
FB-2 IN
HB-2 IN
R OUT
G OUT
B OUT
1K IN
SYNC OUT
PROTECT Q330
HS IN
VS IN
Y OUT
Y IN
V+ DRIVE
E-W
V-DRIVE
H OUT
AFC PIN
L2 FIL
BUFF Q332
ABL IN
VM
VM AMP Q331
SWITCH Q306
IC2
NVM
LEVEL SHIFT Q305
IC1
MICRO-CONTROLLER
WR
SDA 1
SCL 1
V-BLK
AGC MONI
AFT
RST
RST 2
AUDIO SW
IC4 RESET
STDBY 5V
+5V
IC3
ROM
LEVEL SHIFT Q4,5
A16
A0
D7
D0
COIL
16:9
PROT
DGC
IR
STBY
LS
LED
K1
MUTE
AMP Q80,81
BUFF Q1002
RED OUT
GREEN OUT
BLUE OUT
BLANKING
COR
CDR
HS/SSCP
VS
RGB-S
BUFF Q10
BUFF Q11
BUFF Q12
R2
G2
B2
SWITCH Q17,18
SWITCH Q15,16
BUFF Q304
H SYNC
V SYNC
AFC
CN3
CUT OFF
CN1
ROTATION COIL
V+ DRIVE
16:9
EAST/WEST DRIVE
V—DRIVE
H DRIVE
V SYNC
H FLYBACK
EHT
ABL
PROTECTION
DGC RELAY
AFC
SIRCS
AUDIO OUT SPEAKER
CHASSIS STANDBY
AUDIO R OUT SPEAKER
LUMISPONDER
STANDBY LED
FRONT KEY 1
VM
AUDIO MUTE
AUDIO R OUT HP
AUDIO L OUT HP
AUDIO R IN AV-3
AUDIO L IN AV-3
CVBS IN AV-3
S-VHS C IN AV-3
S-VHS Y IN AV-3
TO D BOARD CN902
CN703
R DRIVE, BKG Q702, 703
G DRIVE, BKG Q705, 706
B DRIVE, BKG Q708, 709
CUT OFF Q711
R OUT Q704
G OUT Q707
B OUT Q710
D701
V901 PICTURE TUBE
H RCV G2 G4 HV
TO D BOARD CN804
CN701
+ 200V
D711 PROTECT
H1
H2
RCV
RV702 H STAT
RV701 SCREEN
G2 (1000V)
C (RGB OUT)
TO D BOARD T803 (FBT)
VM (VM AMP)
CN1718
CN1015
TO D BOARD CN1401
VM OUT
VM AMP Q1701, 1702, 1708, 1709
VM AMP BUFFER Q1704
VM OUT Q1703, 1706
DRIVE SW Q1707
+9V
135V
GND
CP
NECK ASSY
D2 (ROTATION AMP)
CN1301
TO D BOARD CN801
ROTATION
FBT 15V
IC1802
ROTATION AMP
ROT +
ROT -
CN1803
TO ROTATION COIL
IC1801
9V REG

5-2. CIRCUIT BOARDS LOCATION



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Rating electrical power ¼ W

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	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ✳	ADJUSTABLE RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
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	: ALR	HIGH RIPPLE

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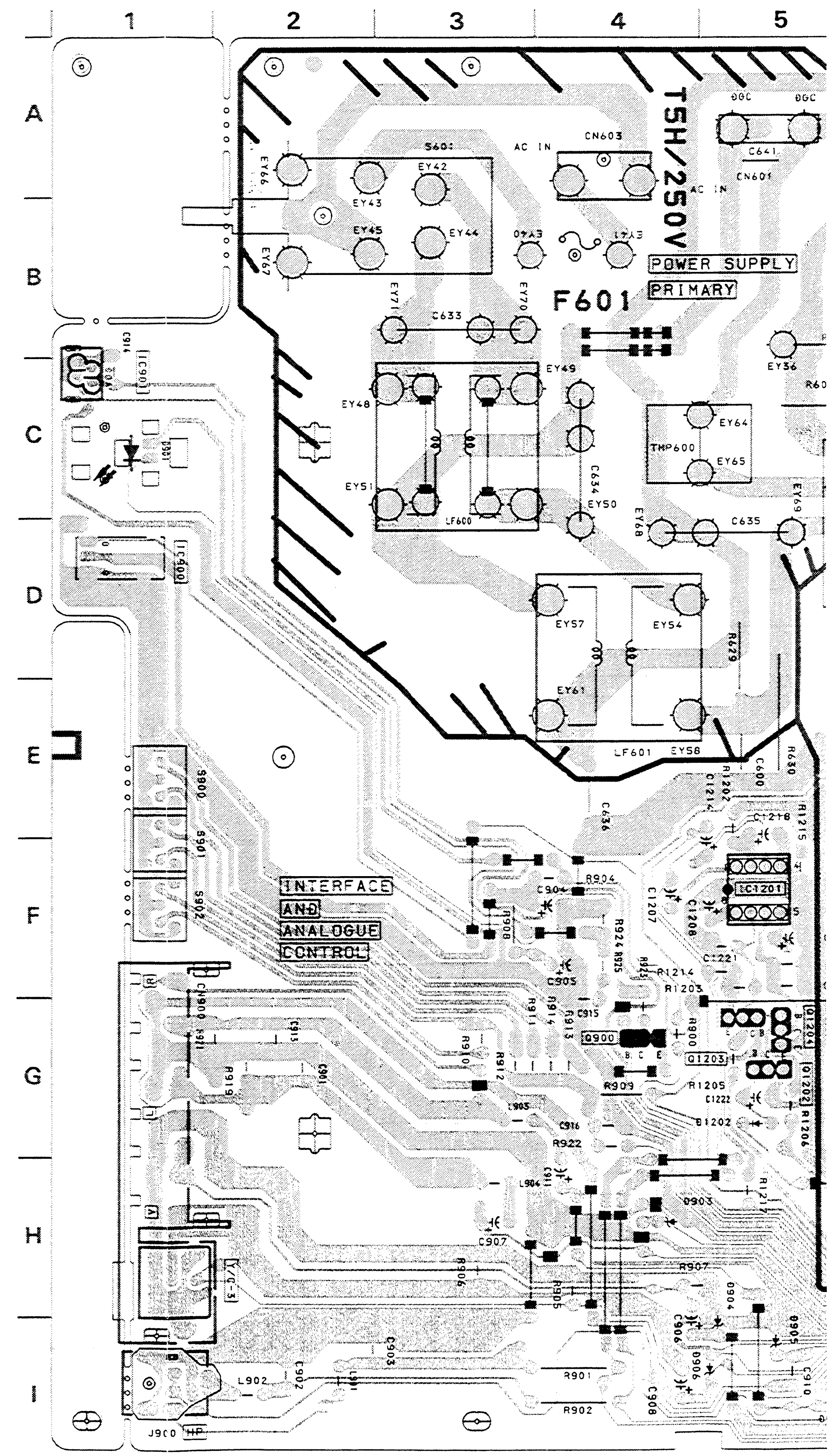
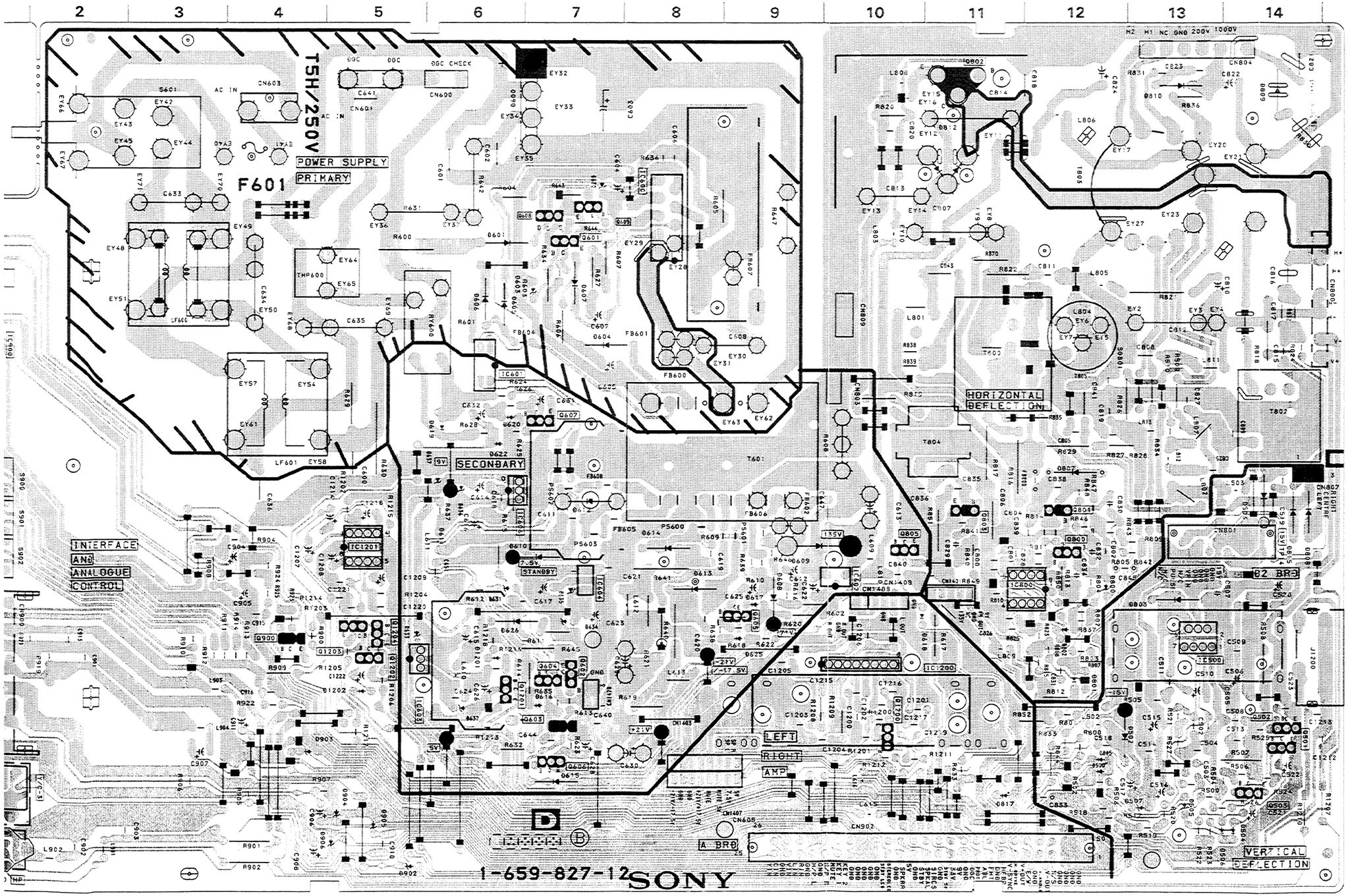
- All voltages are in V.
- Circled numbers are waveform references.
- ——— : B+ bus.
- : signal path. (RF)

D [HV CUT, PIN OUT, POWER SUPPLY, CONTROL SW, AUDIO IN Y-CHROMA IN, HEADPHONE IN, SIRCS RECEIVE, INDICAITON]

D Board



UT, PIN OUT, POWER SUPPLY, CONTROL SW, AUDIO IN
ROMA IN, HEADPHONE IN, SIRCS RECEIVE, INDICAITON

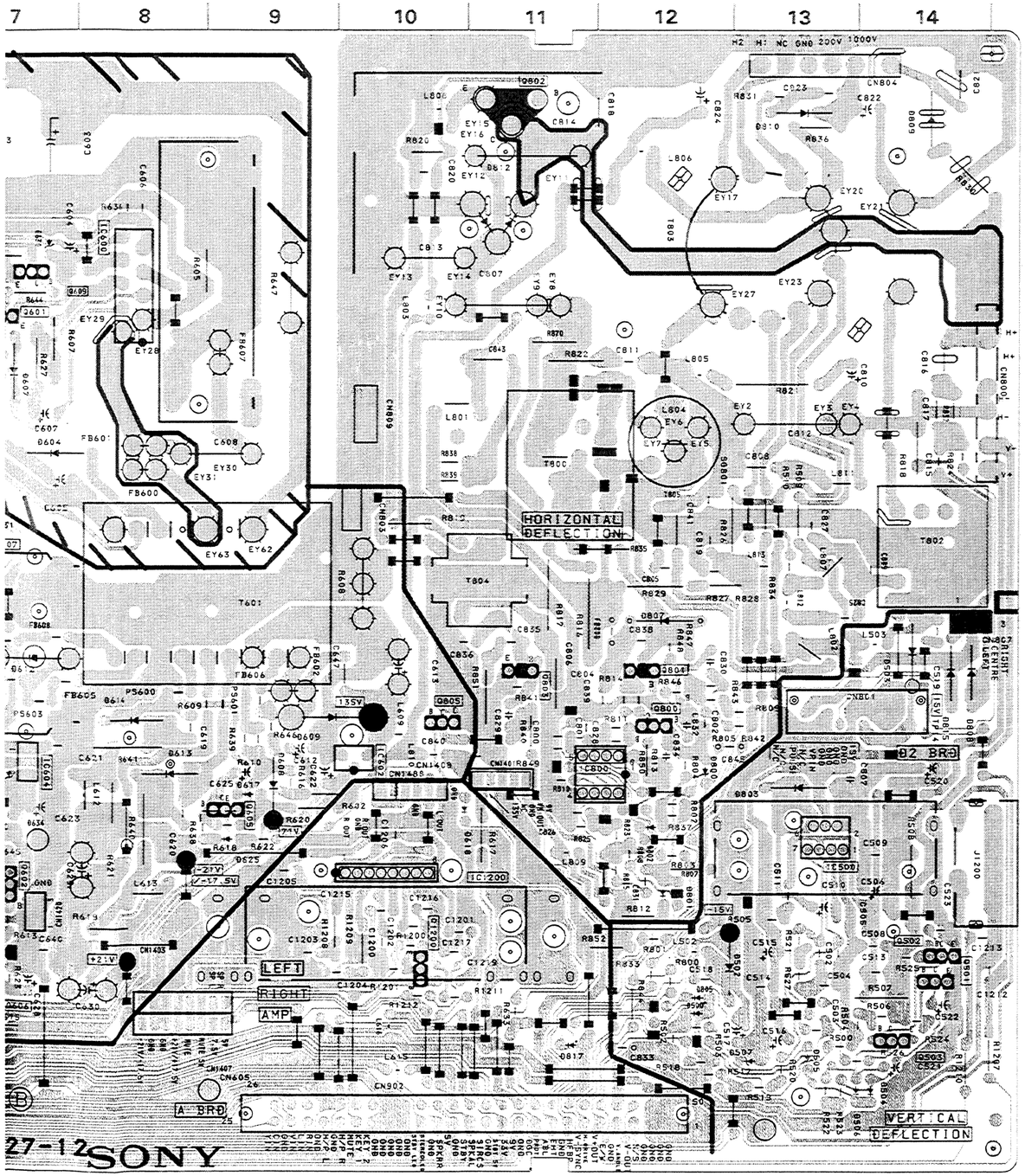


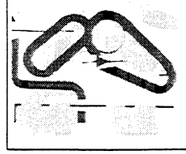
D BOARD

IC
IC500
IC600
IC601
IC602
IC603
IC604
IC606
IC800
IC900
IC1200
IC1201

TRANSIS
Q501
Q502
Q503
Q601
Q602
Q603
Q604
Q605
Q606
Q607
Q800
Q801
Q802
Q803
Q805
Q900
Q1200
Q1201
Q1202
Q1203
Q1204

DIOD
D500
D502
D503
D504
D505
D506
D507

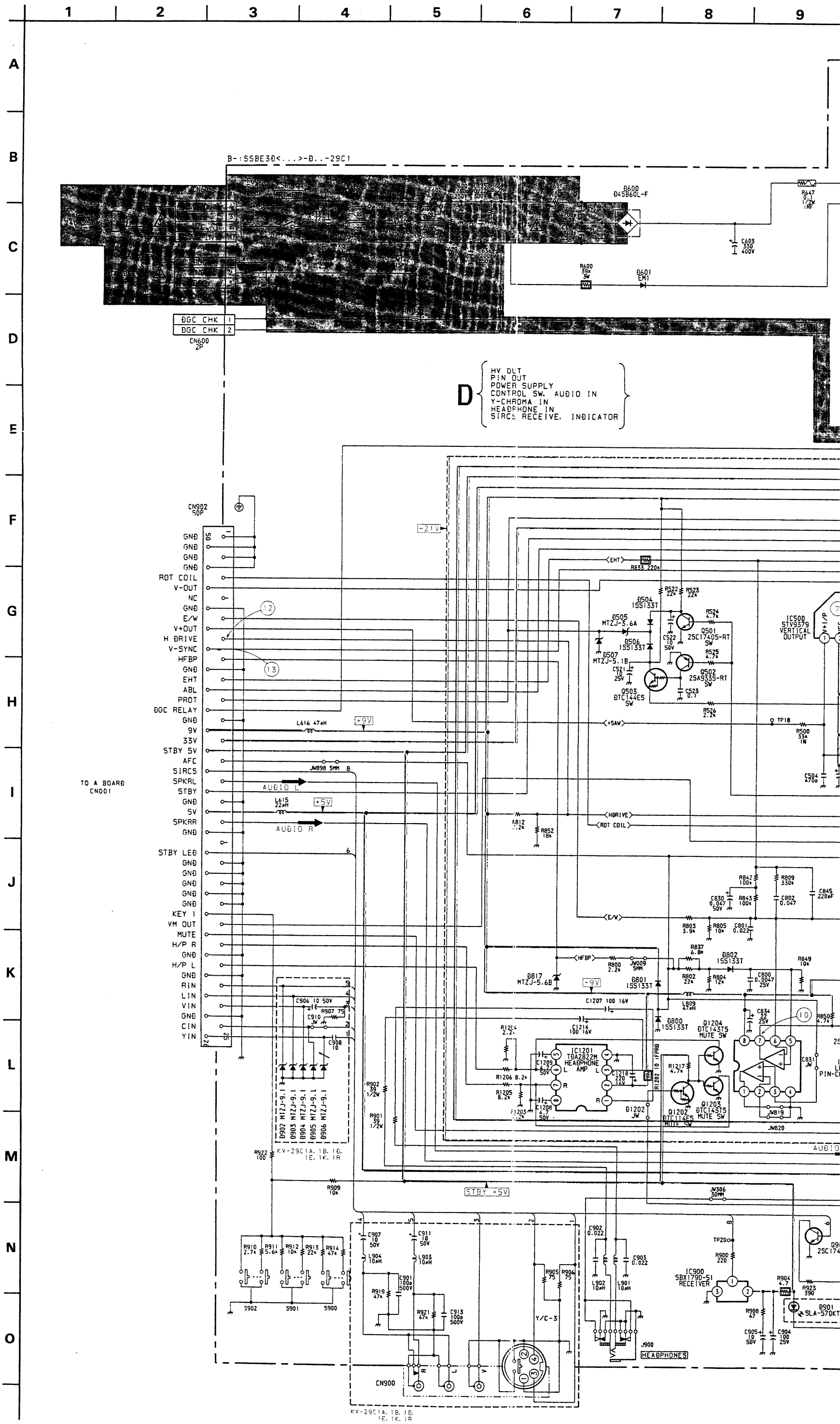


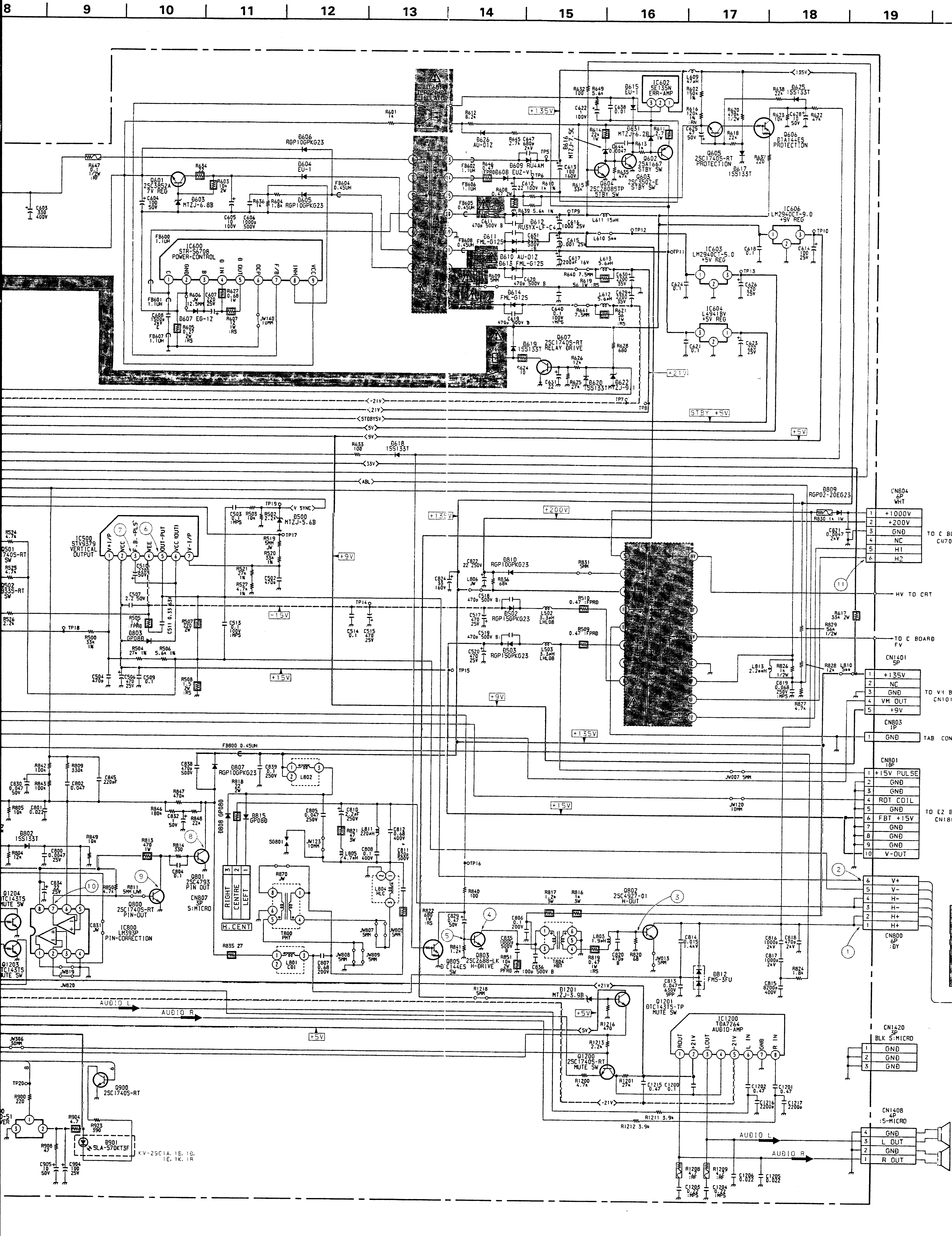


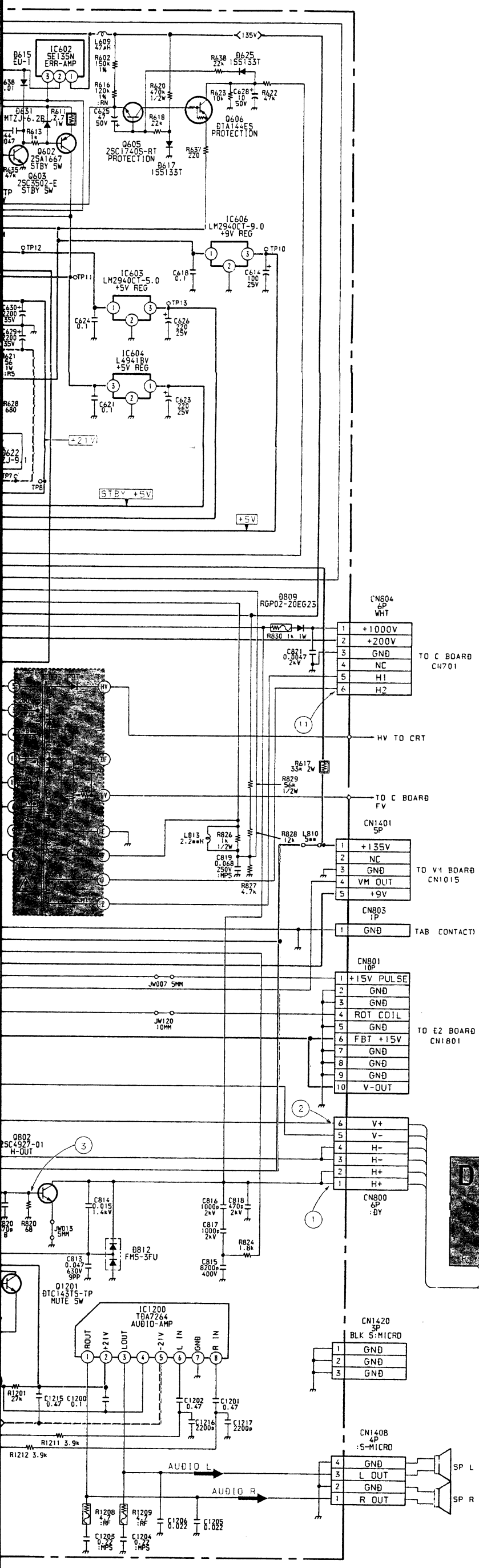
NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

D BOARD

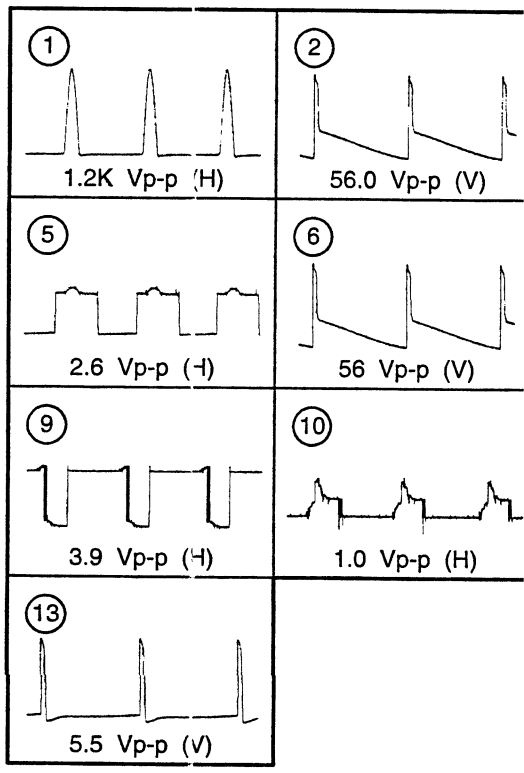
IC		DIODE	
IC500	G-13	D600	A-7
IC600	B-8	D601	C-6
IC601	D-6	D603	C-7
IC602	F-10	D604	D-7
IC603	G-5	D605	C-6
IC604	F-7	D606	C-6
IC606	E-6	D607	C-7
IC800	F-12	D608	F-9
IC900	D-1	D609	F-9
IC1200	G-10	D610	F-7
IC1201	F-5	D611	F-6
		D612	E-7
TRANSISTOR		D613	F-8
Q501	H-14	D614	F-8
Q502	H-14	D615	H-7
Q503	H-14	D616	G-7
Q601	C-7	D617	F-9
Q602	G-7	D618	F-11
Q603	H-7	D619	E-6
Q604	G-7	D620	E-6
Q605	F-9	D622	E-6
Q606	H-7	D625	G-9
Q607	D-7	D626	G-6
Q800	F-12	D631	F-6
Q801	E-12	D800	F-12
Q802	A-11	D801	G-12
Q803	E-11	D802	G-12
Q805	F-10	D803	F-13
Q900	G-4	D807	E-12
Q1200	H-10	D808	E-14
Q1201	G-6	D809	A-14
Q1202	G-5	D810	A-13
Q1203	G-5	D812	B-11
Q1204	G-5	D815	E-14
DIODE		D817	H-11
D500	H-12	D901	C-1
D502	H-13	D902	I-5
D503	I-14	D903	H-4
D504	H-11	D904	H-5
D505	H-13	D905	I-5
D506	I-14	D906	I-5
D507	H-13	D1201	G-6


B-:SSBE30<...>-0..-29C1
D600 D45B60L-F
R647 0.1 1/2W :RF
C603 330 400V
R600 SGx SW
D601 EM1
0GC CHK 1
0GC CHK 2
CN600 2P
D
HV OUT
PIN OUT
POWER SUPPLY
CONTROL SW. AUDIO IN
Y-CHROMA IN
HEADPHONE IN
SIRCS RECEIVE. INDICATOR
CN902 50P
GND
ROT COIL
V-OUT
NC
E/W
V+OUT
H DRIVE
V-SYNC
HFBP
EHT
ABL
PROT
DGC RELAY
9V
33V
STBY 5V
AFC
SIRCS
SPKRL
STBY
5V
SPKRR
STBY LED
KEY 1
VM OUT
MUTE
H/P R
H/P L
RIN
LIN
VIN
CIN
YIN
TO A BOARD CN001
-21V
EHT
R833 220k
R522 22k
R523 22k
D504 1SS133T
D505 MTZJ-3.6A
D506 1SS133T
D507 MTZJ-5.1B
Q501 2SC1740S-RT SW
Q502 2SA933S-RT SW
Q503 DTC144ES SW
C522 10 50V
C523 0.1
C521 10 25V
R524 4.7k
R525 4.7k
R526 2.2k
IC500 STV9379 VERTICAL OUTPUT
V+I/P
TP18
R500 33k 1%
C504 470P
+SAW
L616 47uH
+9V
JW898 5MM
AUDIO L
L615 22uH
+5V
AUDIO R
HDRIVE
ROT COIL
R812 2.2k
R852 18k
R842 100k
R809 330k
C845 220pF
C830 0.047 50V
R843 100k
C802 0.047
E/W
R803 3.9k
R805 10k
C801 0.022
R837 6.8k
D802 1SS133T
R849 10k
HFBP
R800 2.2k
JW009 5MM
D817 MTZJ-5.6B
+9V
D801 1SS133T
R802 22k
R804 12k
C800 0.0047 25V
C1207 100 16V
L809 47uH
D800 1SS133T
Q1204 DTC143TS MUTE SW
C834 22 25V
R850 4.7k
R1204 2.2k
C1214 100 16V
IC1201 TDA2822M HEADPHONE AMP
C1209 4.7 50V
C1208 4.7 50V
C1218 220 16V
R1206 8.2k
R1205 8.2k
R1203 2.2k
R1202 10 :FPRD
D1202 JW
Q1202 DTC114ES MUTE SW
Q1203 DTC143TS MUTE SW
R1217 4.7k
C831 JW
JW819
JW820
R902 39 1/2W
R901 39 1/2W
C906 10 50V
R907 75
C910 JW
C908 10
D902 MTZJ-9.1
D903 MTZJ-9.1
D904 MTZJ-9.1
D905 MTZJ-9.1
D906 MTZJ-9.1
KV-29C1A. 1B. 1D. 1E. 1K. 1R
R922 100
R909 10k
STBY +5V
JW306 30MM
AUDIO
R910 2.7k
R911 5.6k
R912 10k
R913 22k
R914 47k
S902
S901
S900
C907 10 50V
C911 10 50V
L904 10uH
L903 10uH
C901 100p 500V
R919 47k
R921 47k
C913 100p 500V
R905 75
R906 75
Y/C-3
CN900
KV-29C1A. 1B. 1D. 1E. 1K. 1R
C902 0.022
C903 0.022
L902 10uH
L901 10uH
J900
HEADPHONES
TP20
R900 220
IC900 SBX1790-51 RECEIVER
R904 4.7
R923 390
D901 SLA-570KT
R908 47
C905 10 50V
C904 100 25V


8 9 10 11 12 13 14 15 16 17 18 19
IC601 TLP721(D4) ISOLATOR
R601 1k
R612 8.2k
D606 RGP10GPKG23
D626 AU-01Z
R645 2.7k
C647 680p 2kV
R647 0.1 1/2W :RF
R634 22
D604 EU-1
Q601 2SC3852A 7V REG
R603 10k 2W
C604 100 50V
D603 MTZJ-6.8B
FB604 0.45UH
R636 1k
R604 1.8k
D605 RGP10GPKG23
C603 330 400V
C605 10 100V
C606 1000p 500V
FB600 1.1UH
IC600 STR-S6708 POWER-CONTROL
C GND B D IN D OUT OCP F/B INH VCC
R606 JW 12.5MM
C607 220 25V
R627 0.68 1W
FB601 1.1UH
C608 1500p 2kV E
D607 EG-1Z
R607 1Z 1W :RS
JW140 10MM
R605 0.27 2W :RS
FB607 1.1UH
FB602 1.1UH
R646 0.47 :FPRD
D608 EUZ-V1
D609 RU4AM
TP5
TP6
FB606 1.1UH
C612 22 100V
R610 1k 1%
R608 0.47 2W
FB605 0.45UH
R639 5.6k 1%
C611 470p 500V B
D612 RU3YX-LF-C4
FB608 0.45UH
D611 FML-G12S
C651 470p 500V :B
D610 AU-01Z
D613 FML-G12S
R609 5MM
C620 470p 500V B
D614 FML-G12S
C619 470p 500V B
+135V
R632 100
R649 5.6k
C622 1 100V
C638 0.01
D615 EU-1
IC602 SE135N ERR-AMP
D616 MTZJ-7.5C
R614 22k 1W
D631 MTZJ-6.2B
R611 2.7 1W
C644 0.0047
R613 1k
C613 100 160V
Q602 2SA1667 STBY SW
R635 47k
Q603 2SC3502-E STBY SW
R615 33k
Q604 2SC2808STP STBY SW
TP9
C616 1000 25V
L611 15μH
C615 0.001 25V
L610 5mm
TP12
TP11
C617 2200μF 16V
L613 5.6μH
R640 7.5MM
R619 56 1W :RS
C630 2200 35V
C640 0.1 100V :MPS
L612 5.6μH
R641 7.5MM
C629 2200 35V
R621 56 1W :RS
L609 47μH
R602 150k 1%
R616 120k 1% :RN
C625 47 50V
R620 470k 1/2W
R618 22k
Q605 2SC1740S-RT PROTECTION
D617 1SS133T
<135V>
R638 22k
D625 1SS133T
R623 10k
C628 10 50V
R622 47k
Q606 DTA144ES PROTECTION
R637 220
IC606 LM2940CT-9.0 +9V REG
TP10
C618 0.1
C614 100 25V
IC603 LM2940CT-5.0 +5V REG
TP13
C624 0.1
C626 220 25V
IC604 L4941BV +5V REG
C621 0.1
C623 220 25V
RY600
D619 1SS133T
Q607 2SC1740S-RT RELAY DRIVE
R628 680
R624 10
R626 12k
C631 22
R625 27k
D620 1SS133T
D622 MTZJ-9.1
+21V
TP7
TP8
STBY +5V
+5V
<-21V>
<21V>
<STDBY5V>
<5V>
<9V>
R633 100
D618 1SS133T
<33V>
<ABL>
R524 4.7k
Q501 2SC1740S-RT SW
R525 4.7k
Q502 2SA933S-RT SW
R526 2.2k
IC500 STV9379 VERTICAL OUTPUT
V+I/P VCC F.B.-PLS VEE OUT-PUT VCC (OUT) V-I/P
C510 220 50V
C507 2.2 50V
R505 1.2 :FPRD
C511 0.33 63V
R507 220 2W
D803 GP08D
R504 27k 1%
R506 5.6k 1%
TP18
R500 33k 1%
C504 470p
C506 470 25V
C509 0.1
R508 1.5 2W :RS
TP19
<V SYNC>
C503 0.1 :MPS
R503 10k
R502 2.2k
D500 MTZJ-5.6B
TP17
R519 5MM JW
R520 33k 1%
R521 27k 1%
R527 4.7k 1%
C502 470p
C513 0.1 100V :MPS
+9V
-15V
+15V
TP14
C514 0.1
C515 470 25V
+135V
+200V
C822 22 250V
D810 RGP10GPKG23
R831 5MM
C824 33 160V
L806 JW
R836 68k
C518 470p 500V B
D502 RGP15GPKG23
L502 3.3μH LHL08
R510 0.47 :FPRD
C517 470 25V
C519 470p 500V B
D503 RGP15GPKG23
L503 3.3μH LHL08
R509 0.47 :FPRD
C520 470 25V
TP15
T803 FBT
HV
DF
FV
+135V
D809 RGP02-20EG25
R830 1k 1W
C821 0.0047 2kV
CN804 6P WHT
+1000V
+200V
GND
NC
H1
H2
TO C BOARD CN70
HV TO CRT
R617 33k 2W
R829 56k 1/2W
TO C BOARD FV
L813 2.2mH
R826 1k 1/2W
C819 0.068 250V :MPS
R827 4.7k
R828 12k
L810 5mm
CN1401 5P
+135V
NC
GND
VM OUT
+9V
TO V1 BOARD CN101
CN803 1P
GND
TAB CON
CN801 10P
+15V PULSE
GND
GND
ROT COIL
GND
FBT +15V
GND
GND
GND
V-OUT
TO E2 BOARD CN18
JW007 5MM
JW120 10MM
FB800 0.45UH
R842 100k
R809 330k
C845 220pF
C830 0.047 50V
R843 100k
C802 0.047
R805 10k
C801 0.022
D802 1SS133T
R804 12k
C800 0.0047 25V
R849 10k
C838 470p 500V
D807 RGP10GPKG23
C839 0.1 250V
L802
R818 22 2W
R847 470k
R846 180k
C832 1 50V
R848 22k
R813 470 1W
R814 330
C804 0.1
Q801 2SC4793 PIN OUT
C834 22 25V
R850 4.7k
R811 5MM (JW)
Q800 2SC1740S-RT PIN-OUT
Q1204 DTC143TS MUTE SW
Q1203 DTC143TS MUTE SW
C831 JW
IC800 LM393P PIN-CORRECTION
JW819
JW820
D808 GP08D
D815 GP08D
CN807 3P S:MICRO
RIGHT CENTRE LEFT
H.CENT
SG801
JW123 10MM
C805 0.047 250V
C810 2.2μF 250V
R821 47 3W
L811 220μH
C812 0.68 400V
L805 4.7μH
C808 0.1 400V
C811 820p 500V
R870 JW
T800 PMT
L804 HLC
JW807 5MM
JW805 5MM
R835 27
L801 CDI
C807 0.68 200V
JW808 5MM
JW809 5MM
TP16
R840 100
R822 680 1W :RS
C829 0.47 50V
Q805 DTC144ES SW
R841 1.2k
Q803 2SC2688-LK H-DRIVE
C806 0.1 200V
C835 1000p 500V B
R851 10k 2W PFRD
C836 100p 500V B
R817 1.2k 3W
R816 1k 3W
T804 HDT
L803 1.9μH
R819 0.47 1W :RS
C820 470p B
R820 68
Q802 2SC4927-01 H-OUT
JW013 5MM
C814 0.015 1.4kV
C813 0.047 630V 9PP
D812 FMS-3FU
C816 1000p 2kV
C818 470p 2kV
C817 1000p 2kV
R824 1.8k
C815 8200p 400V
CN800 6P :DY
V+
V-
H-
H-
H+
H+
AUDIO L
AUDIO R
R1218 5MM
D1201 MTZJ-3.9B
<+21V>
Q1201 DTC143TS-TP MUTE SW
+5V
<5V>
R1216 470
R1213 2.2k
Q1200 2SC1740S-RT MUTE SW
R1200 4.7k
R1201 27k
C1215 0.47
C1200 0.1
<-21V>
IC1200 TDA7264 AUDIO-AMP
ROUT +21V LOUT -21V L IN GND R IN
C1202 0.47
C1201 0.47
C1216 2200p
C1217 2200p
R1211 3.9k
R1212 3.9k
R1208 4.7 :RF
R1209 4.7 :RF
C1206 0.022
C1205 0.022
C1203 0.22 :MPS
C1204 0.22 :MPS
CN1420 3P BLK S:MICRO
GND
GND
GND
CN1408 4P :S-MICRO
GND
L OUT
GND
R OUT
JW306 30MM
TP20
R900 220
Q900 2SC1740S-RT
R904 4.7
R923 390
D901 SLA-570KT3F
KV-29C1A, 1B, 1D, 1E, 1K, 1R
R908 47
C905 10 50V
C904 100 25V



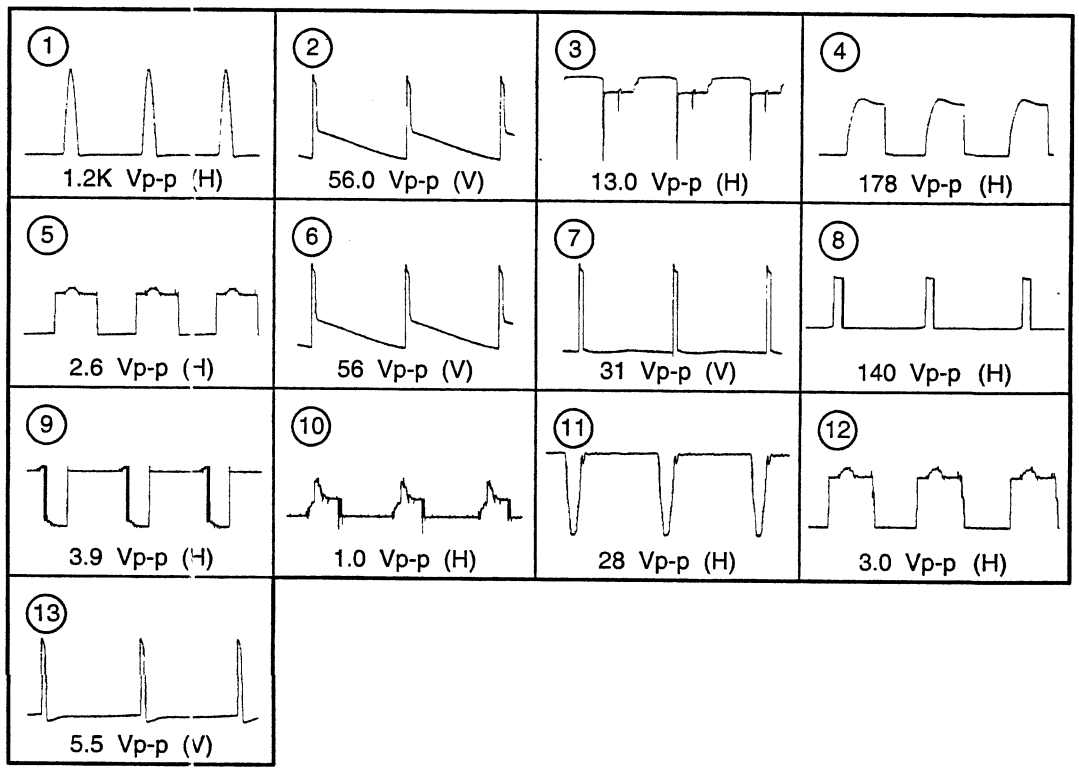
WAVEFORMS D BOARD



D BOARD
TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q501	-0.1	0.2	-
Q502	0.1	-5.8	-
Q503	-5.8	-12.0	-12.0
Q602	72.0	7.5	72.7
Q603	0	72.0	-
Q604	0.7	-	-
Q605	0.5	-	0.3
Q606	-	-	12.0
Q607	-	12.0	-
Q800	0.2	3.1	-
Q801	0.3	17.0	-
Q802	-0.2	143.3	-
Q803	-0.6	99.8	-
Q805	-	3.6	-
Q900	-	5.4	-
Q1200	2.9	21.5	4.6
Q1201	3.4	5.0	3.0
Q1202	2.8	-	-

WAVEFORMS D BOARD

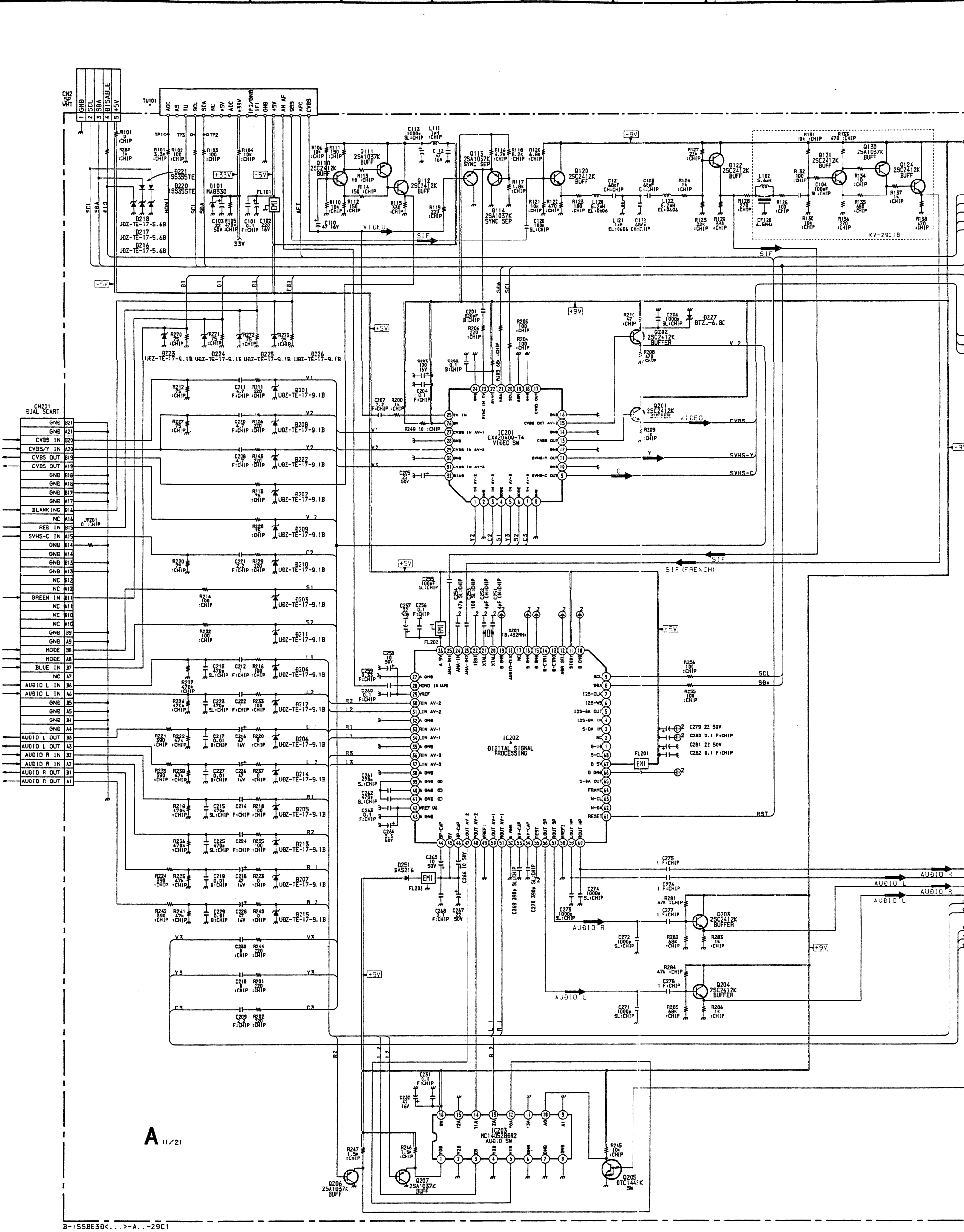


D BOARD
TRANSISTOR VOLTAGE TABLE

Transistor Vo tage Table			
Ref No	B Base	C Collector	E Emitter
Q501	-0.1	0.2	-
Q502	0.1	-5.8	-
Q503	-5.8	-12.0	-12.0
Q602	72.0	7.5	72.7
Q603	0	72.0	-
Q604	0.7	-	-
Q605	0.5	-	0.3
Q606	-	-	12.0
Q607	-	12.0	-
Q800	0.2	3.1	-
Q801	0.3	17.0	-
Q802	-0.2	143.3	-
Q803	-0.6	99.8	-
Q805	-	3.6	-
Q900	-	5.4	-
Q1200	2.9	21.5	4.6
Q1201	3.4	5.0	3.0
Q1202	2.8	-	-

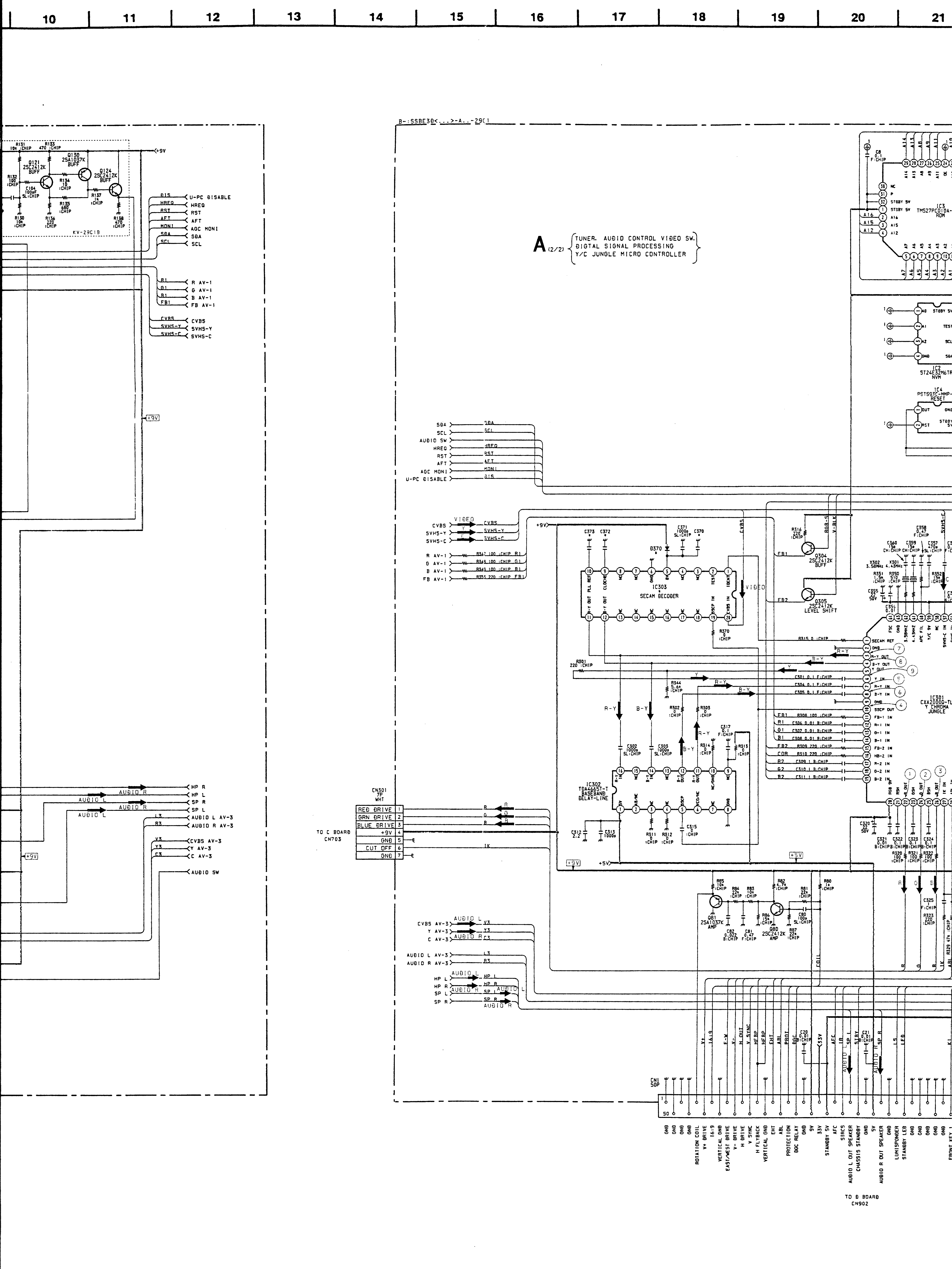
D BOARD IC VOLTAGE TABLE

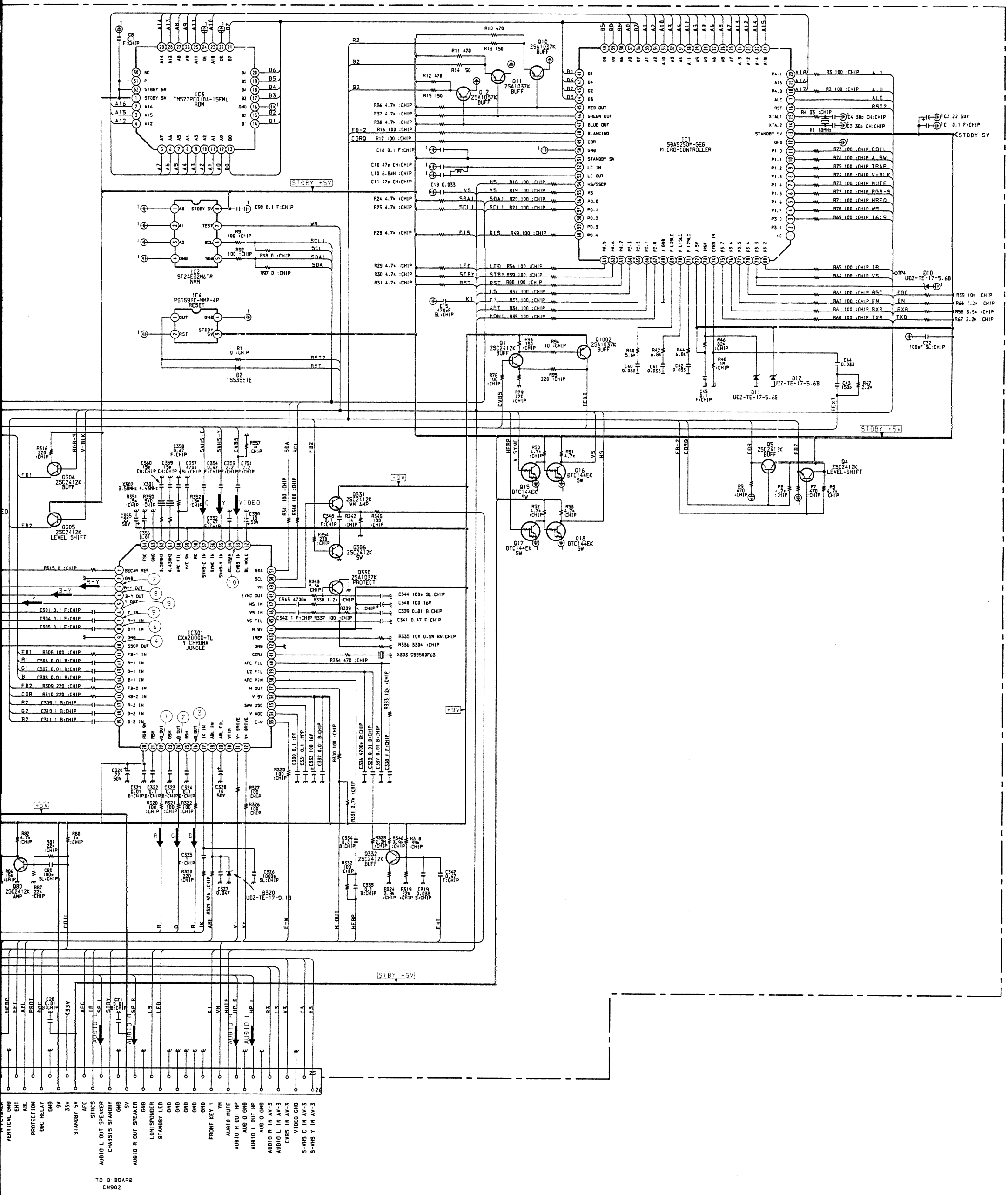
IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC500	1	1.5
	2	15.0
	3	-12.3
	4	-14.0
	5	0.1
	6	15.2
	7	1.4
IC600	1	170.0
	2	-62.4
	3	-62.6
	4	-62.2
	5	-62.0
	6	-62.6
	7	-62.4
	8	-62.0
	9	-58.0
IC601	1	64.3
	2	63.0
	3	-62.5
	4	-58.6
IC602	1	135.0
	2	63.2
	3	-0.1
IC800	3	0.9
	5	1.5
	6	2.0
	7	0.2
	8	9.0
IC1200	2	21.7
	4	21.5
	5	-21.7
IC1201	1	4.0
	2	9.0
	3	4.0
	5	0.5
	8	0.5

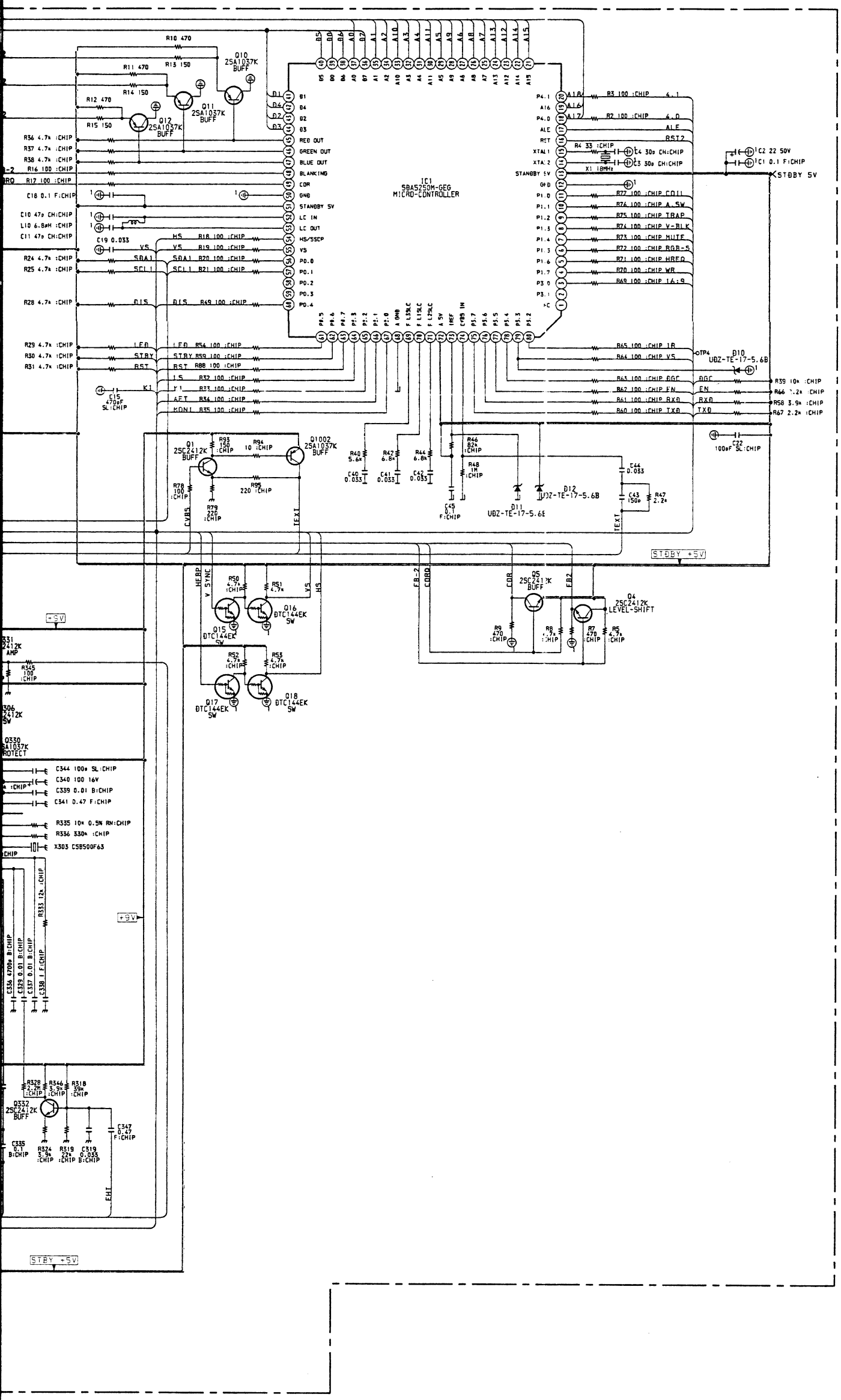


A BOARD * MARK

Ref. No. \ Model	29C1A	29C1B	29C1D	29C1D 1	29C1E	29C1K	29C1R
C19	—	—	—	—	—	0.033MF	0.033MF
C370	—	2.2UF	2.2UF	2.2UF	2.2UF	2.2UF	2.2UF
C372	—	0.1UF	0.1UF	0.1UF	0.1UF	0.1UF	0.1UF
C373	—	0.22UF	0.22UF	0.22UF	0.22UF	0.22UF	0.22UF
D370	—	BAS216	BAS216	BAS216	BAS216	BAS216	BAS216
IC202	MSP3400C-P5	MSP3410-15	MSP3400C-PS	MSP3400C-PS	MSP3410-15	MSP3400C-PS	MSP3400C-PS
IC303	—	TDA8395T	TDA8395T	TDA8395T	TDA8395T	TDA8395T	TDA8395T
R51	—	—	—	—	—	4.7K	4.7K
TU101	TUVIF (AEP)	TUVIF (FR)	TUVIF (AEP)	TUVIF (AEP)	TUVIF (AEP)	TUVIF (AEP)	TUVIF (AEP)


10
11
12
13
14
15
16
17
18
19
20
21
A (2/2)
TUNER. AUDIO CONTROL VIDEO SW.
DIGTAL SIGNAL PROCESSING
Y/C JUNGLE MICRO CONTROLLER
B-:SSBE30<...>-A..-29C1
R131 10k :CHIP
R133 470 :CHIP
Q130 2SA1037K BUFF
Q121 2SC2412K BUFF
Q124 2SC2412K BUFF
R132 100 :CHIP
R134 10 :CHIP
C104 100pF SL:CHIP
R137 1k :CHIP
R135 680 :CHIP
R130 10k :CHIP
R136 220 :CHIP
R138 470 :CHIP
KV-29C1B
+9V
U-PC DISABLE
HREQ
RST
AFT
AGC MONI
SDA
SCL
R AV-1
G AV-1
B AV-1
FB AV-1
CVBS
SVHS-Y
SVHS-C
HP R
HP L
SP R
SP L
AUDIO R
AUDIO L
AUDIO L AV-3
AUDIO R AV-3
CVBS AV-3
Y AV-3
C AV-3
AUDIO SW
IC3 TMS27PC010A- ROM
C8 0.1 F:CHIP
STDBY 5V
IC2 ST24E32M6TR NVM
IC4 PST593C-MMP- RESET
VIDEO
R347 100 :CHIP R1
R348 100 :CHIP G1
R349 100 :CHIP B1
R353 220 :CHIP FB1
IC303 SECAM DECODER
C373 C372 C371 1000p SL:CHIP C370
D370
R370 0 :CHIP
R301 220 :CHIP
R344 5.6k :CHIP
R302 0 :CHIP
R303 0 :CHIP
C317 0.1 F:CHIP
R314 0 :CHIP
R313 0 :CHIP
C302 1000p SL:CHIP
C303 1000p SL:CHIP
IC302 TDA4665T-T BASEBAND DELAY-LINE
C312 2.2
C313 1000p
R311 0 :CHIP
R312 0 :CHIP
C315 0 :CHIP
R316 220 :CHIP
Q304 2SC2412K BUFF
Q305 2SC2412K LEVEL SHIFT
IC301 CXA2000Q-TL Y CHROMA JUNGLE
X302 3.58MHz
X301 4.43MHz
R351 1.5k :CHIP
R350 510 :CHIP
C355 22 50V
R315 0 :CHIP
C301 0.1 F:CHIP
C304 0.1 F:CHIP
C305 0.1 F:CHIP
R308 100 :CHIP
C306 0.01 B:CHIP
C307 0.01 B:CHIP
C308 0.01 B:CHIP
R309 220 :CHIP
R310 220 :CHIP
C309 1 B:CHIP
C310 1 B:CHIP
C311 1 B:CHIP
C320 22 50V
C321 0.01 B:CHIP
C322 0.1 B:CHIP
C323 0.1 B:CHIP
C324 0.1 B:CHIP
R320 100 :CHIP
R321 100 :CHIP
R322 100 :CHIP
C325 1 F:CHIP
R323 220 :CHIP
R329 47k :CHIP
CN301 7P WHT
RED DRIVE
GRN DRIVE
BLUE DRIVE
+9V
GND
CUT OFF
GND
TO C BOARD CN703
+5V
R85 10k :CHIP
R84 22k :CHIP
R83 10k :CHIP
R82 4.7k :CHIP
R81 22k :CHIP
R80 1k :CHIP
Q81 2SA1037K AMP
Q80 2SC2412K AMP
C82 0.022 B:CHIP
C81 0.47 F:CHIP
R86 15k :CHIP
C80 100p SL:CHIP
R87 22k :CHIP
C20 0.01 B:CHIP
C21 0.01 B:CHIP
CN1 50P
GND
GND
GND
GND
ROTATION COIL
V+ DRIVE
16:9
VERTICAL GND
EAST/WEST DRIVE
V- DRIVE
H DRIVE
V SYNC
H FLYBACK
VERTICAL GND
EHT
ABL
PROTECTION
DGC RELAY
GND
9V
33V
STANDBY 5V
AFC
SIRCS
AUDIO L OUT SPEAKER
CHASSIS STANDBY
GND
5V
AUDIO R OUT SPEAKER
GND
LUMISPONDER
STANDBY LED
GND
GND
GND
GND
GND
TO D BOARD CN902


IC3
TMS27PC010A-15FML
ROM
IC1
SBA5250M-GEG
MICRO-CONTROLLER
IC2
ST24E32M6TR
NVM
IC4
PST593C-MMP-4P
RESET
IC301
CXA2000Q-TL
Y CHROMA
JUNGLE
STBY +5V
+9V
+5V
VIDEO
TO B BOARD
CN902



A (1/2) BOARD IC VOLTAGE TABLE

IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC201	13	4.4
	15	4.4
	20	3.5
	21	2.7
	22	4.9
	23	4.4
	24	0
	25	4.4
	26	8.8
	32	4.4
IC202	4	2.8
	6-7	0.1
	8	3.0
	9	3.6
	11	4.7
	13	4.7
	20-21	2.4
	23	0.2
	25	1.5
	26	4.8
	28	3.8
	29	2.6
	39-42	3.8
	44	7.1
	45	8.0
	46	7.1
	47-48	3.8
	53-54	3.8

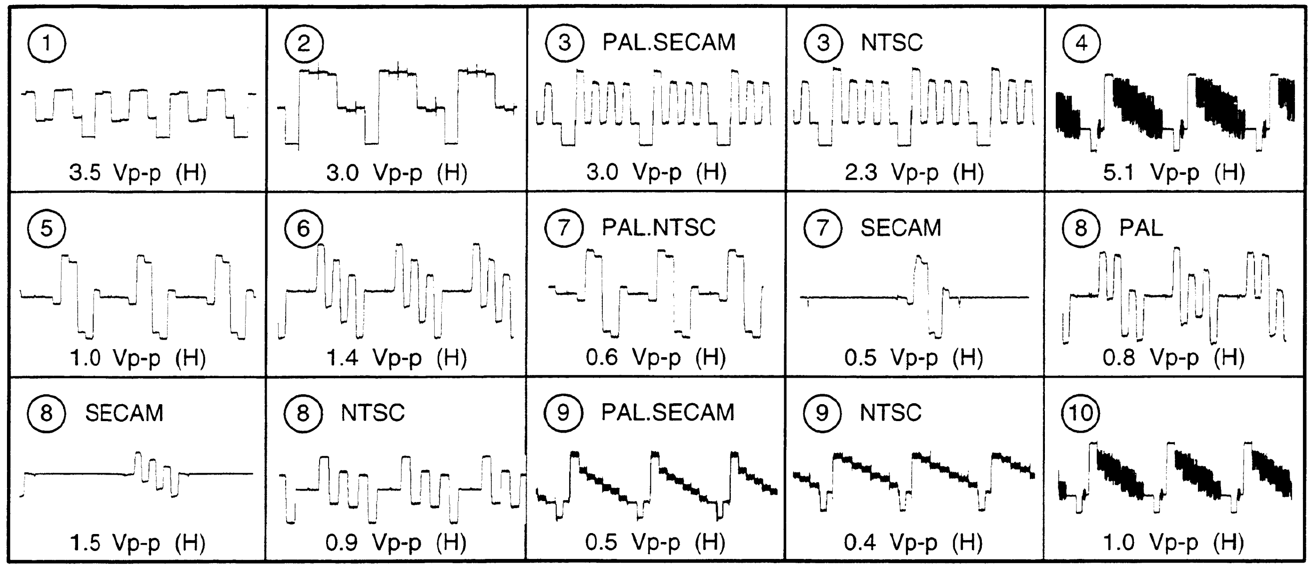
A (2/2) BOARD TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q1	3.7	4.8	3.1
Q4	0.1	4.8	-
Q5	0.7	4.8	4.0
Q15	-	4.3	-
Q16	4.3	0.2	-
Q17	0.4	3.5	-
Q18	3.5	0.7	-
Q80	2.6	2.2	-
Q81	2.4	-	3.0
Q304	-	4.8	-
Q305	-	4.8	-
Q330	4.5	-	5.1
Q331	6.3	8.8	5.7
Q332	3.1	8.8	2.5
Q1001	4.4	-	-

A (1/2) BOARD TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q110	1.8	8.2	1.2
Q112	1.5	8.8	0.8
Q113	1.8	-	-
Q114	5.4	6.0	-
Q120	84.3	8.8	3.7
Q121	1.5	5.4	0.9
Q122	5.4	8.8	4.7
Q124	-	8.8	-
Q201	4.4	8.8	3.7
Q202	4.4	8.8	3.7

WAVEFORMS A BOARD



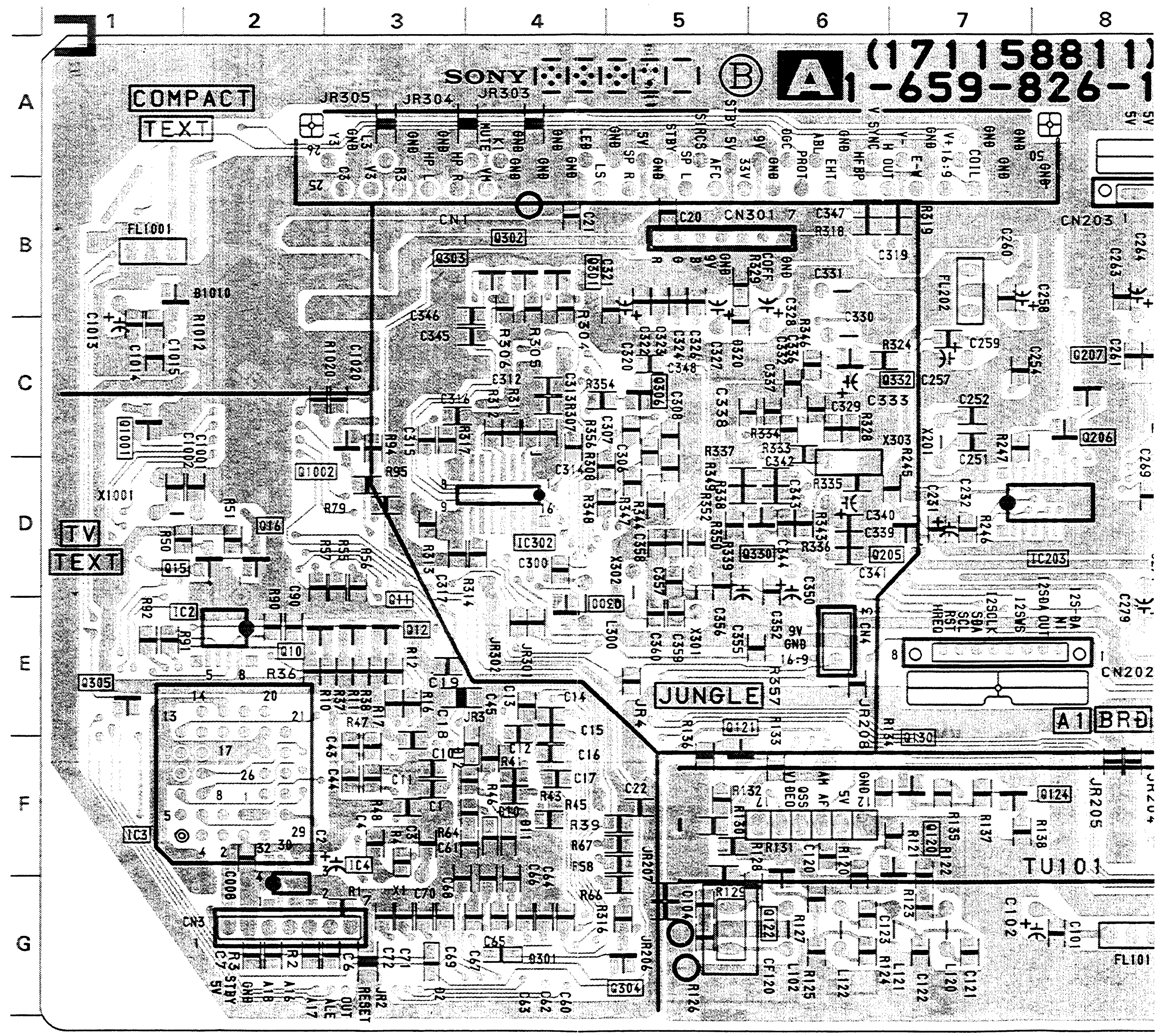
A (2/2) BOARD IC VOLTAGE TABLE

IC Voltage Table

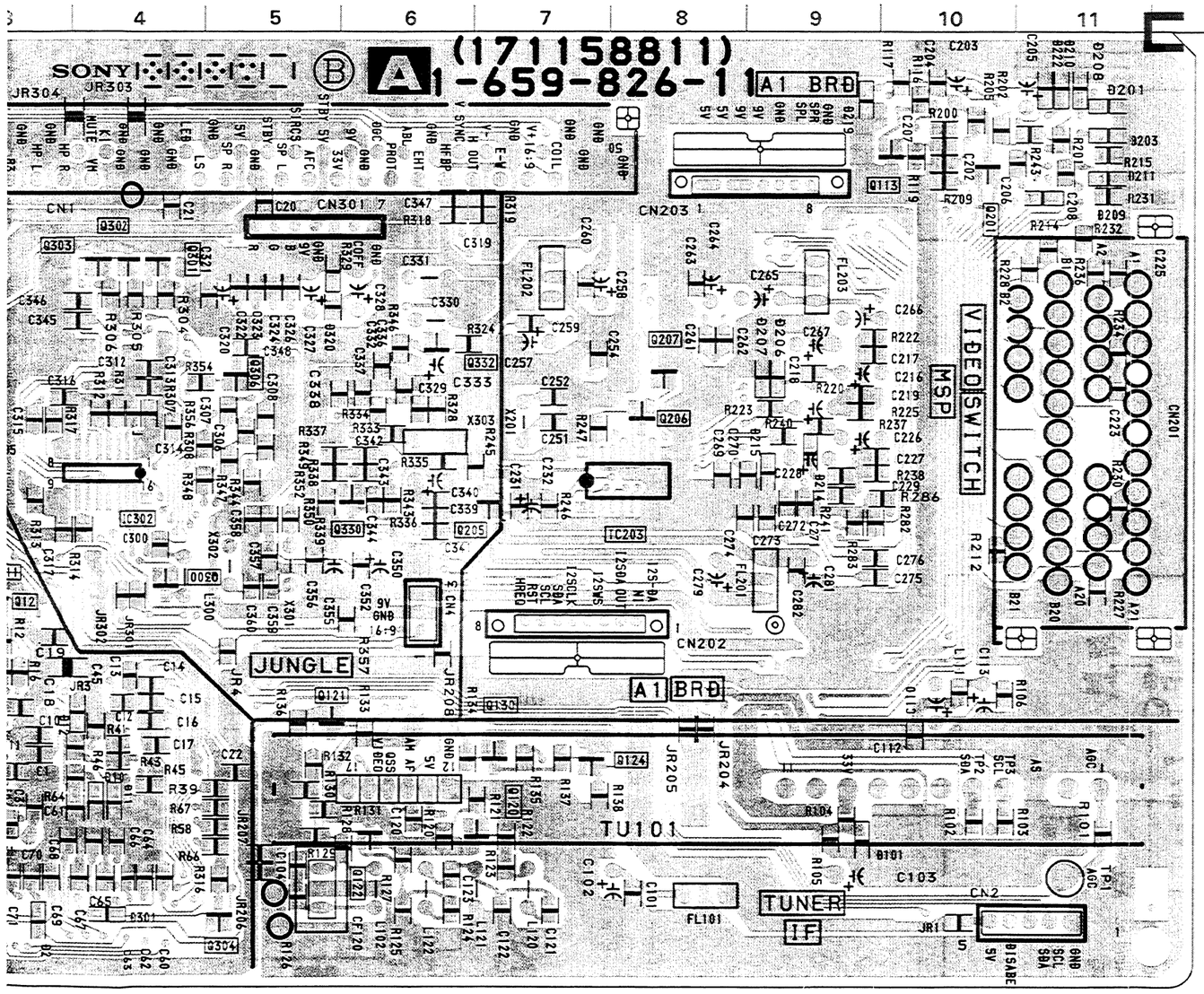
Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)
IC1	2	3.6	IC301	5	3.6	IC301	61	5.0
	3-4	4.8		6	5.0		62	7.6
	5	0.5		7-8	5.4	IC302	1	4.8
	7	4.8		10	0.6		5	0.7
	9	4.8		12-14	5.4		9	4.8
	11	2.4		16	4.0		11-12	3.0
	13	4.8		17-19	5.4		14	1.3
	14-15	2.3		20	8.8		16	1.3
	16-17	4.8		22-23	2.2	IC303	5	8.0
	48	4.0		24	2.0		3.2	10
	51	4.8		25	2.4		11	5.6
	52-53	2.4		26	2.0		0	19
	54	0.7		27	4.0		20	3.7
	55	0.2		28	6.6		4	0.2
	56-57	4.8		29	8.8		5	0.7
	58	2.8		31-33	3.0	IC1001	4	0.2
	59	3.5		34	4.0		5	0.7
	60	2.4		35	4.6		6	1.7
	62	0.7		36	8.8		7	1.8
	63	4.4		37	3.1		10	0.4
	65	4.8		38	3.4		11-12	4.8
	66	2.1		39	5.3		16	4.8
	67	2.0		40	4.2		17	0
	69-71	2.3		41	2.3		21	4.8
	72	4.8		43	1.7		23	3.0
	73	1.5		44	8.8		25	4.8
	74	1.2		45	2.5		56	0
	75-77	4.8		46	3.9		61	1.3
	79	0.2		47	3.0		62-63	1.4
	80	4.8		48	4.4		64	0
IC2	5-8	4.8		49	6.3		66	4.6
IC3	1	4.8		50-51	0.1		67	4.7
	31-32	4.8		53	3.9		68	4.0
IC4	1	4.8		54	5.0			
	3	4.8		55-56	4.2			
IC301	1	1.5		58-59	8.8			
	3-4	5.6		60	5.3			

A [TUNER, AUDIO CONTROL VIDEO SW, DIGITAL SIGNAL PROCESSING Y/C JUNGLE MICRO CONTROLLER]

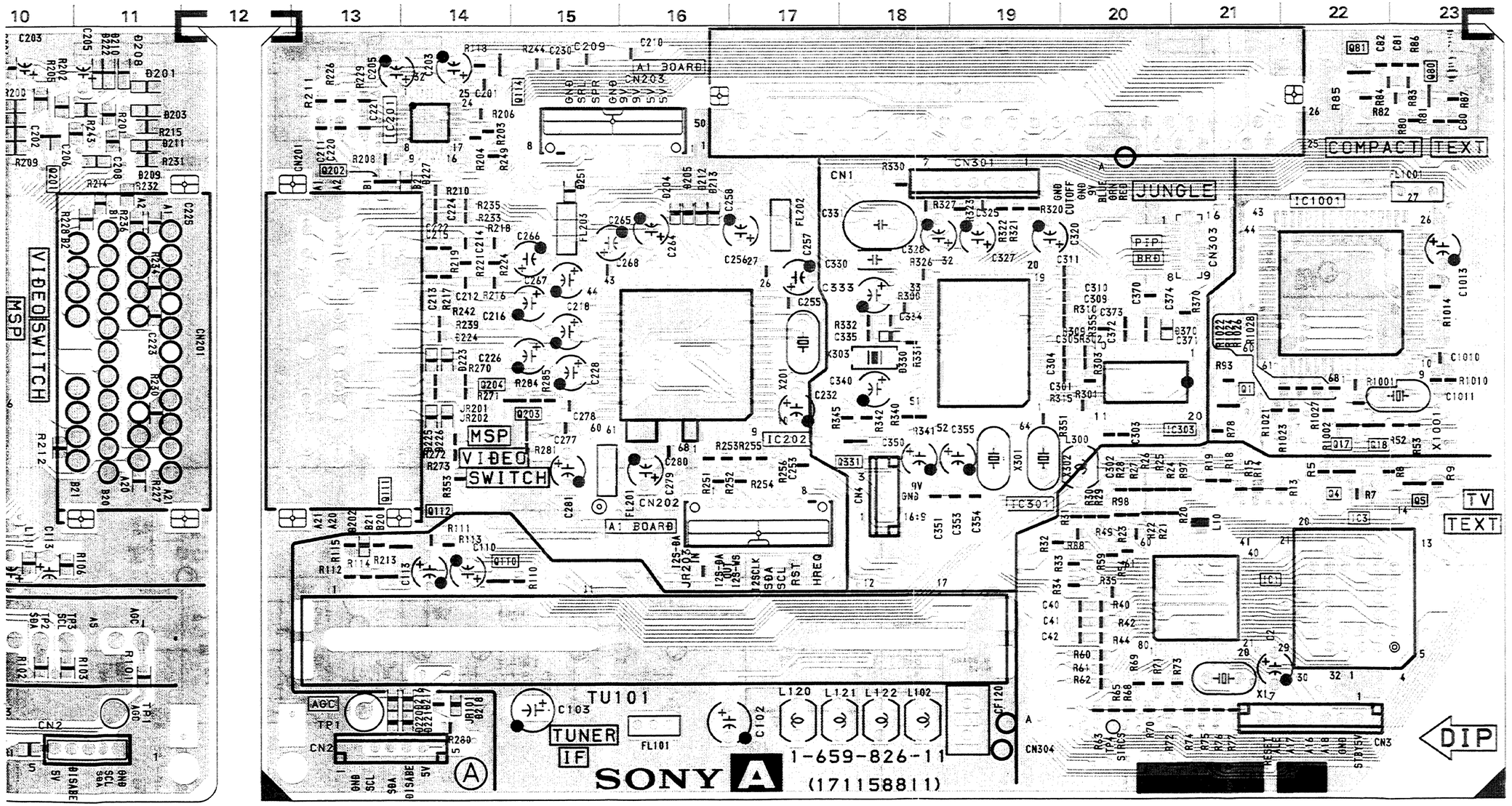
A Board <Conductor Side>



A Board <Component Side>

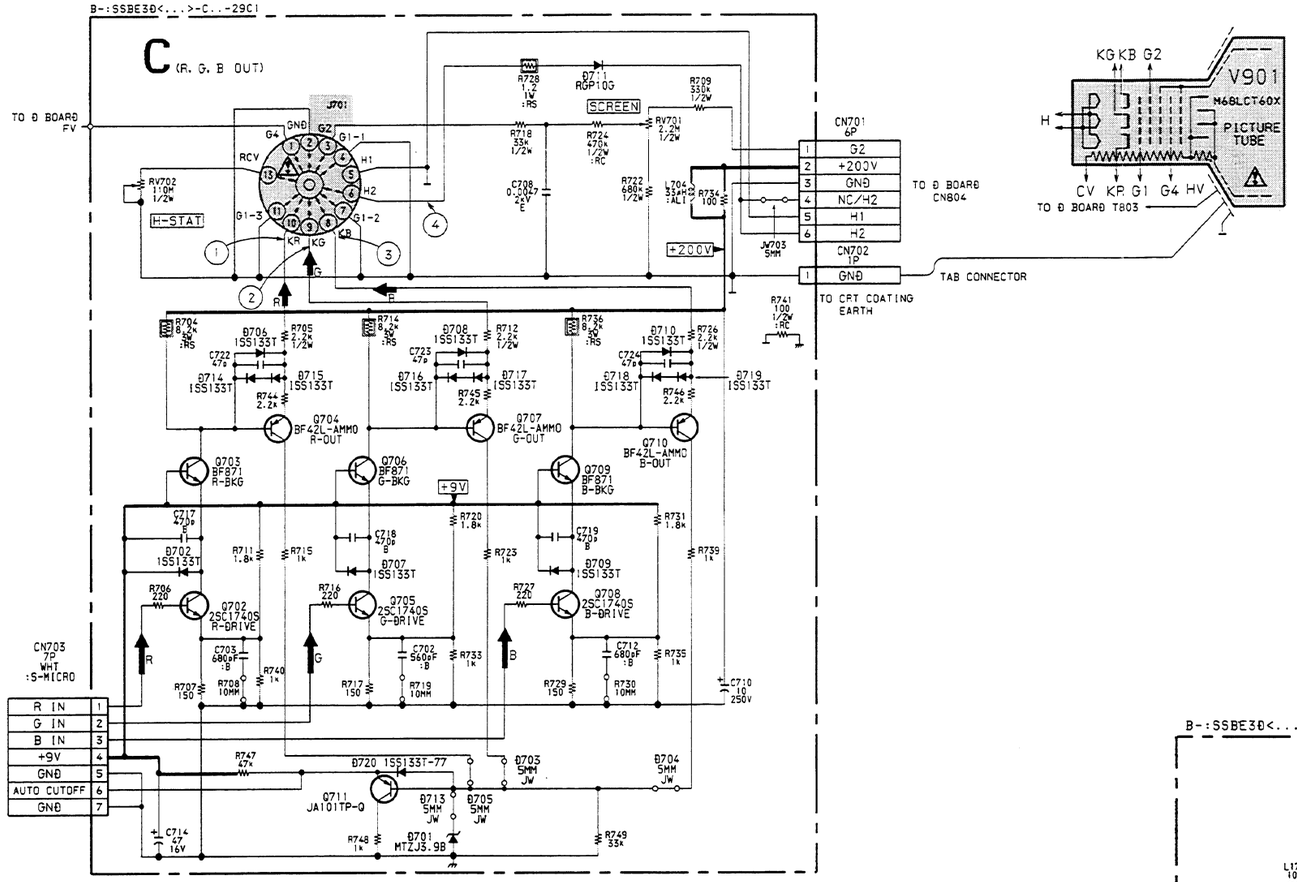


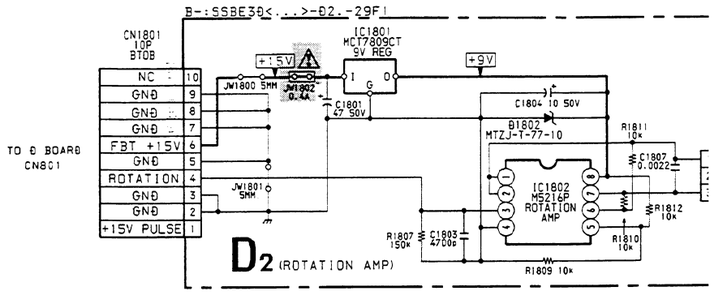
A Board <Component Side>



A BOARD

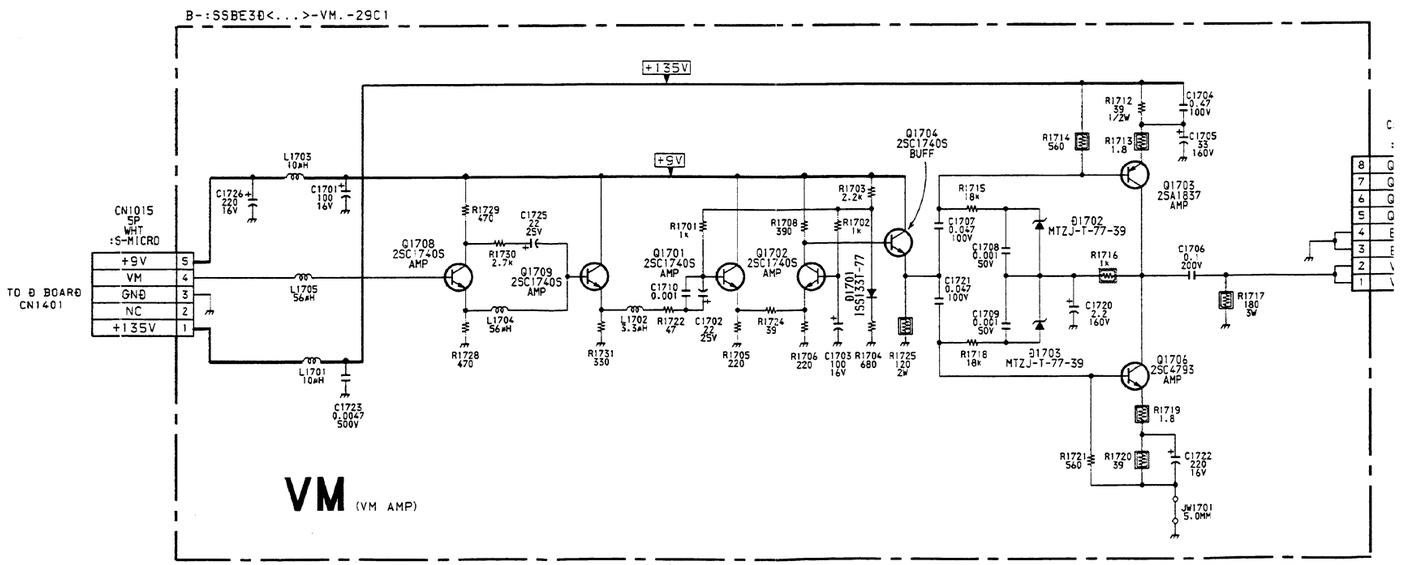
IC		Q305	E-1
IC1	F-21	Q306	C-5
IC2	E-2	Q330	D-6
IC3	F-2	Q331	D-18
IC4	G-2	Q332	C-6
IC201	A-14	Q1002	C-3
IC202	C-16	DIODE	
IC203	D-8	D2	G-3
IC301	C-19	D10	F-10
IC302	D-4	D11	F-10
IC303	D-21	D12	F-4
TRANSISTOR		D101	F-9
Q1	D-21	D201	A-11
Q4	E-22	D202	E-13
Q5	E-23	D203	A-11
Q10	E-2	D204	B-16
Q11	E-3	D205	B-16
Q15	D-2	D206	C-9
Q16	D-2	D207	C-9
Q17	D-22	D208	A-11
Q18	D-23	D209	B-11
Q80	A-23	D210	A-11
Q81	A-22	D211	B-11
Q110	F-14	D212	B-16
Q111	E-14	D213	B-16
Q112	E-14	D214	D-9
Q113	A-10	D215	D-9
Q114	A-14	D216	G-14
Q120	F-7	D217	G-14
Q121	F-5	D218	G-14
Q122	F-6	D220	G-14
Q124	F-7	D221	D-14
Q130	F-7	D222	D-14
Q201	B-10	D223	D-14
Q202	B-13	D224	D-14
Q203	D-15	D225	D-14
Q204	D-15	D226	D-14
Q205	D-7	D227	B14
Q206	C-8	D251	B-15
Q207	C-8	D320	C-5
Q304	G-5	D370	C-21

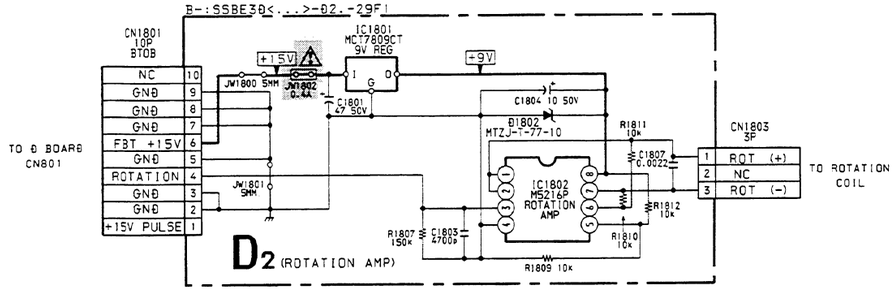


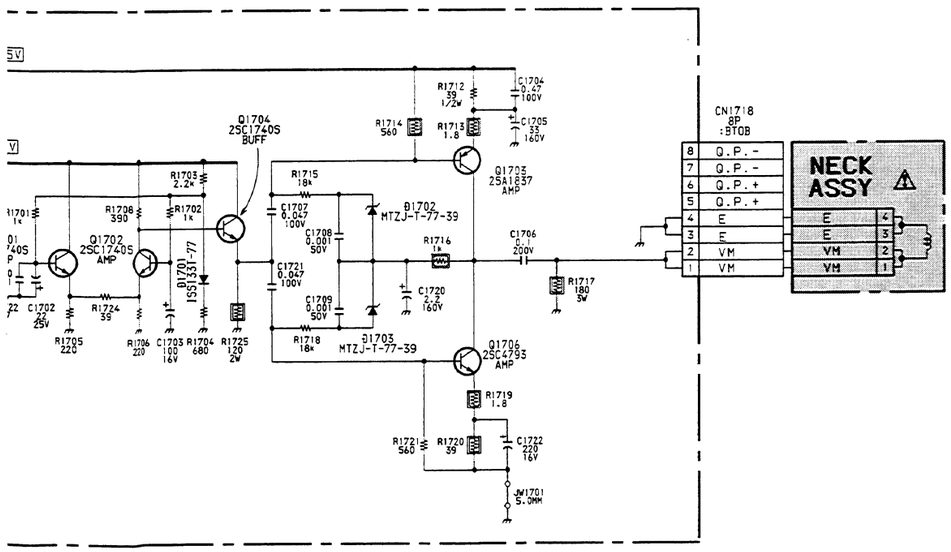


WAVEFORMS C BOARD

①	②	③	④
110 Vp-p (H)	108 Vp-p (H)	90 Vp-p (2H)	21 Vp-p (2H)



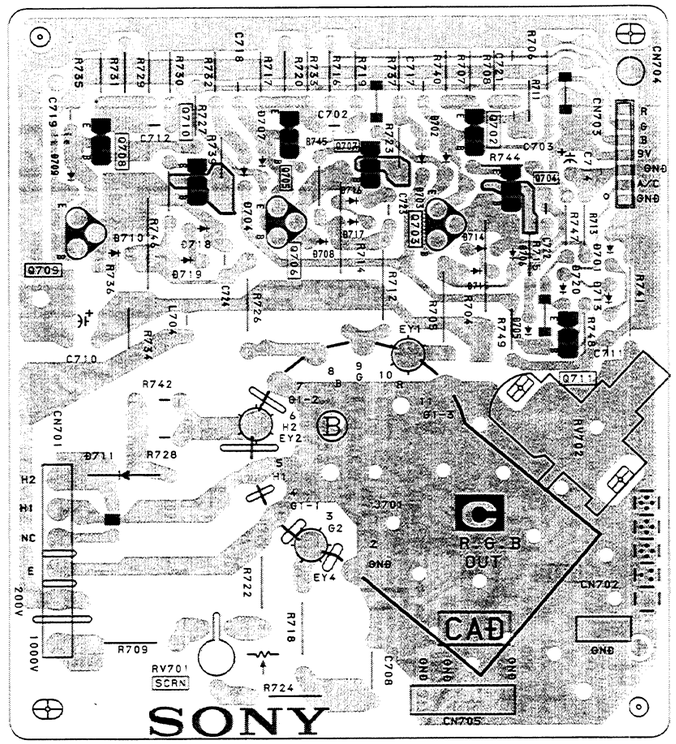




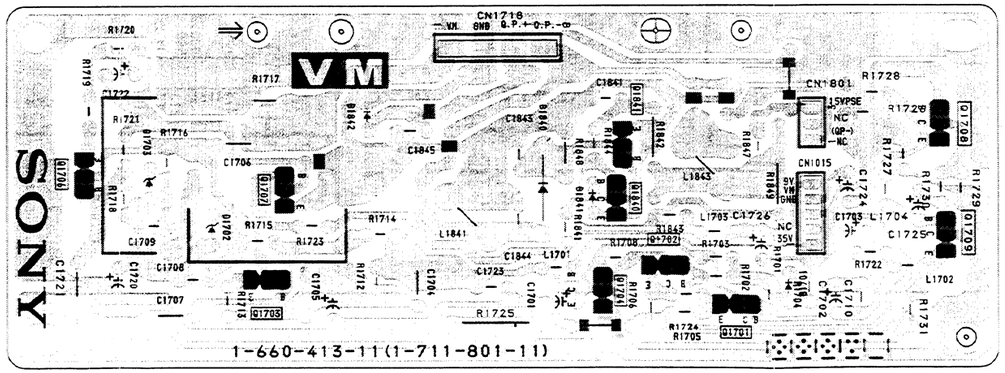
— 60 —

C [R, G, B OUT] **VM** [VM AMP]

C Board



VM Board



C BOARD TRANSISTOR VOLTAGE T.

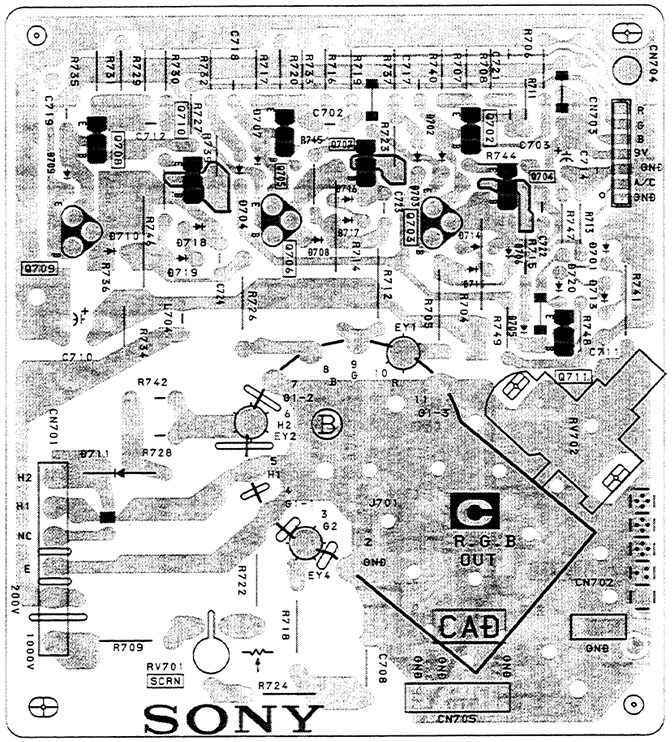
Transistor Voltage Table

Ref No	B Base	C Collector	E Em
Q702	2.0	11.4	1
Q703	12.0	168.3	11
Q704	168.3	6.0	16
Q705	1.7	11.4	1
Q706	12.0	178.8	11
Q707	178.2	6.2	17
Q708	2.0	11.4	1
Q709	12.0	168.3	11
Q710	168.0	6.4	16

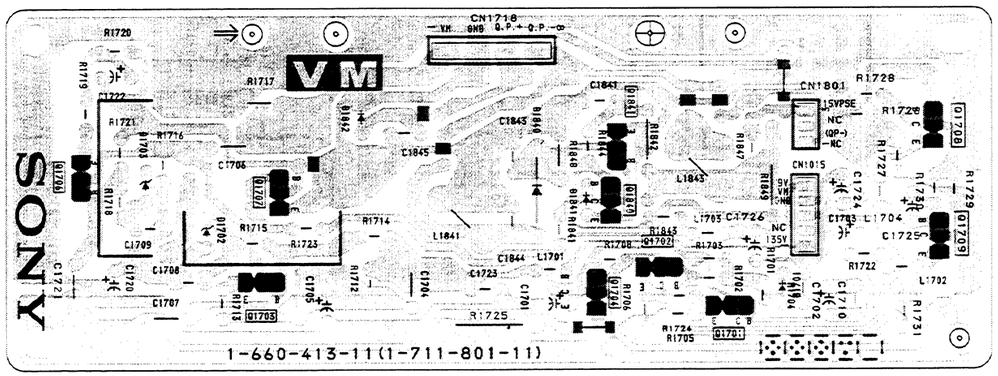
— 61 —

C [R, G, B OUT] VM [VM AMP]

C Board

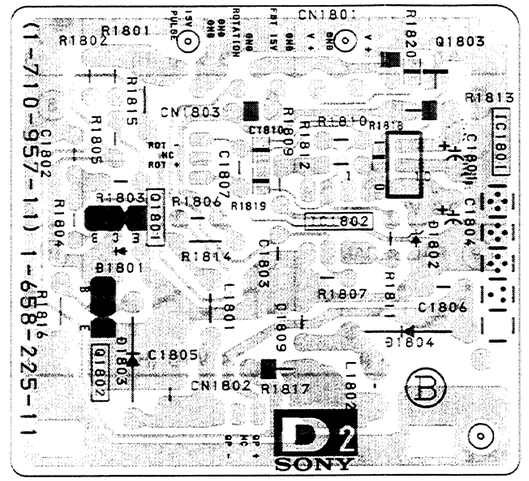


VM Board



D2 [ROTATION AMP]

D2 Board



C BOARD TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q702	2.0	11.4	1.4
Q703	12.0	168.3	11.4
Q704	168.3	6.0	163.5
Q705	1.7	11.4	1.2
Q706	12.0	178.8	11.4
Q707	178.2	6.2	173.8
Q708	2.0	11.4	1.4
Q709	12.0	168.3	11.4
Q710	168.0	6.4	160.0

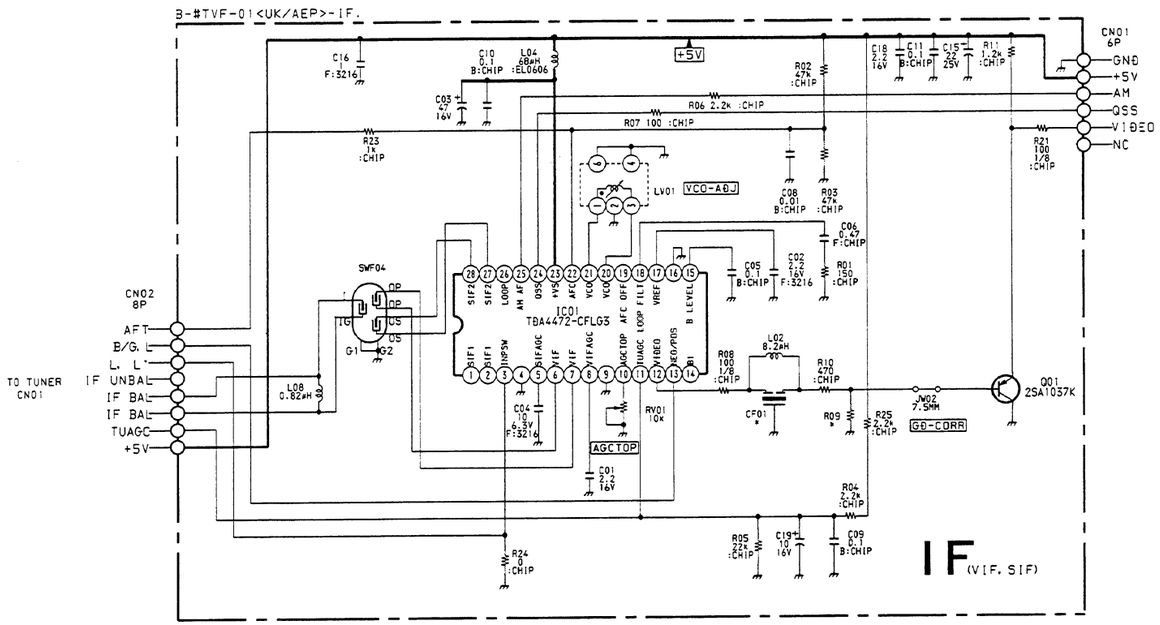
VM BOARD TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q1701	2.5	8.8	1.8
Q1702	2.5	5.5	1.8
Q1703	134.3	71.8	134.8
Q1704	5.5	8.8	4.8
Q1706	1.0	71.8	0.4
Q1707	0.7	-	-
Q1708	2.9	6.6	2.2
Q1709	2.2	8.8	1.5
Q1840	0.6	-	-

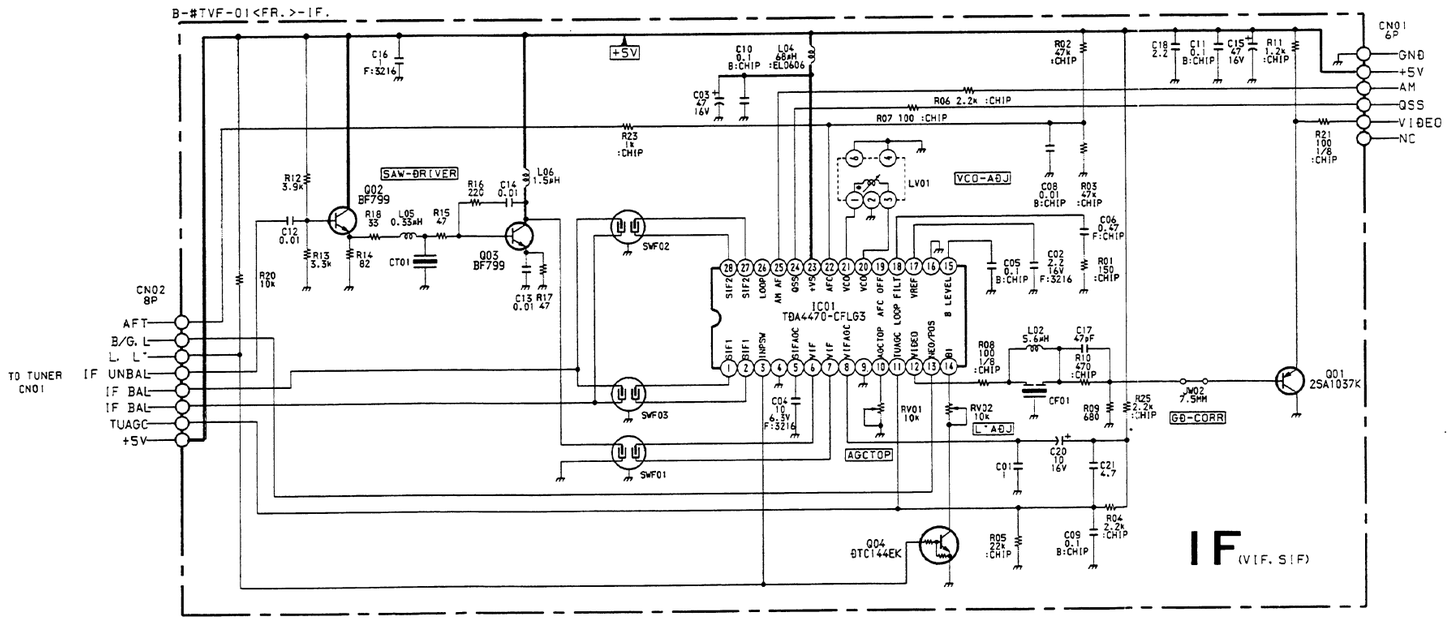
D2 BOARD IC VOLTAGE TABLE

IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC1802	1-2	2.8
	3	3.0
	5-6	4.4
	7	6.2
	8	9.0

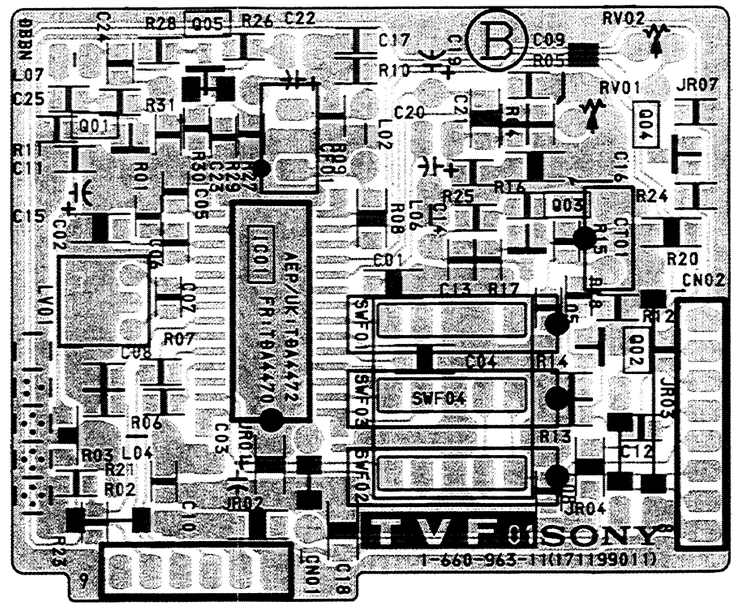
VIF (AEP) (KV-29C1A, 29C1D, 29C1D 1, 29C1E, 29C1K ONLY)



VIF (FR) (KV-29C1B ONLY)

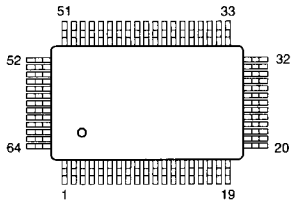


IF Board

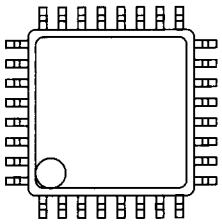


5-4. SEMICONDUCTORS

CXA2000Q-TL



CXA2040Q-T4



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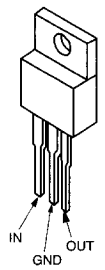
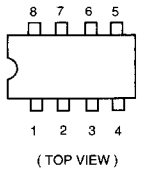
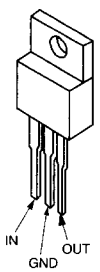


LM393P
TDA2822M
µPC393C



LM2940CT-5.0
LM2940T-9.0
µPC2405HF



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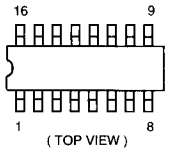
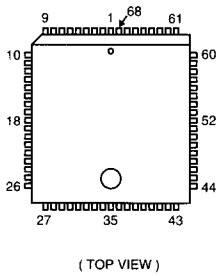
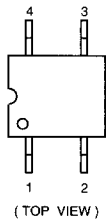


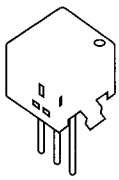
MSP3400C-PS
MSP3410-15



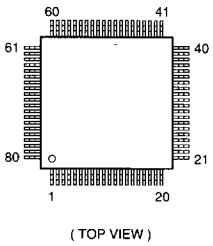
PST593C-MMP-4P



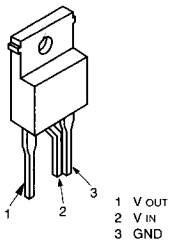
SBX1790-51



SDA5250M-GEG



SE135N



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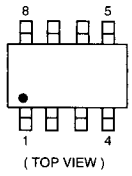
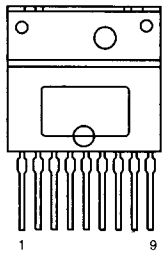
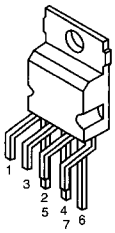


STR-S6708



STV9379



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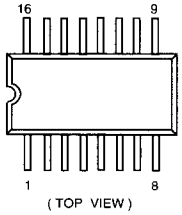

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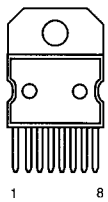
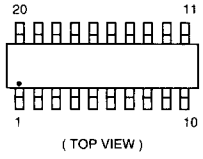


TDA8395T



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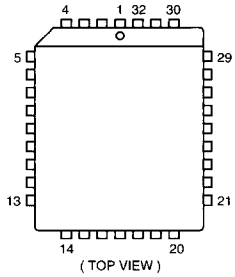

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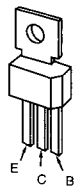

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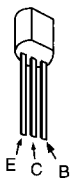

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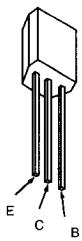

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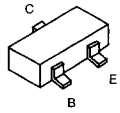

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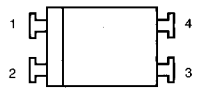

AU-01Z-V1 GP08D
EG-1Z-V1 RGP02
EGP20G RGP10GPKG23
EL1Z RGP15GPKG23
EM1-V1 RU3YX
EU-1-V1 RU4AM-T3
EU2-V1 RU4DS
FML-G12S

MTZJ-3.9B RD3.9ESB2
MTZJ-5.1B RD5.1ESB2
MTZJ-5.6B RD5.6ESB2
MTZJ-6.2B RD6.2ESB2
MTZJ-6.8B RD6.8ESB2
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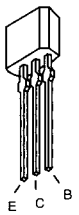

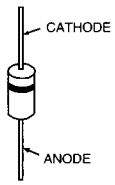

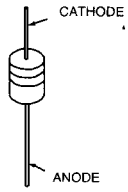

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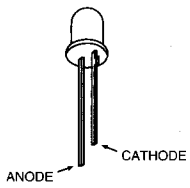

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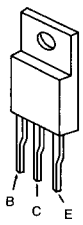

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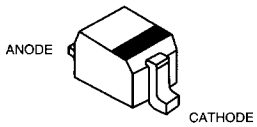
DTZ33B UDZ-TE-17-9.1B



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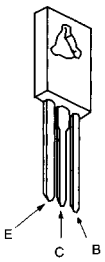

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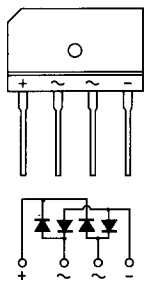

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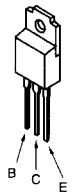
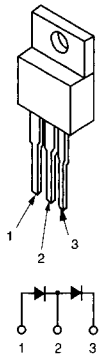


FMS-3FU



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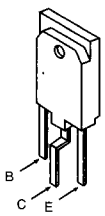
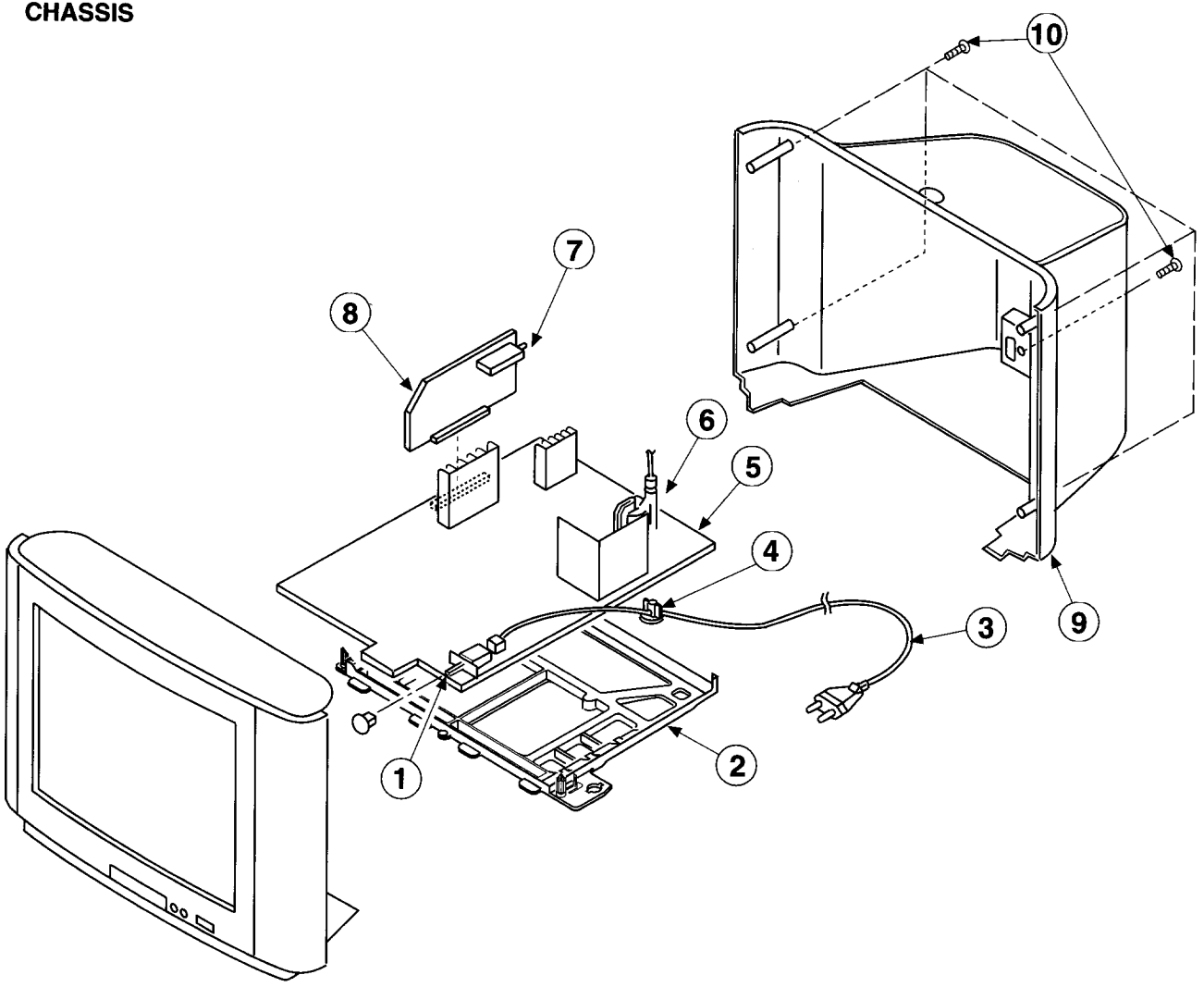
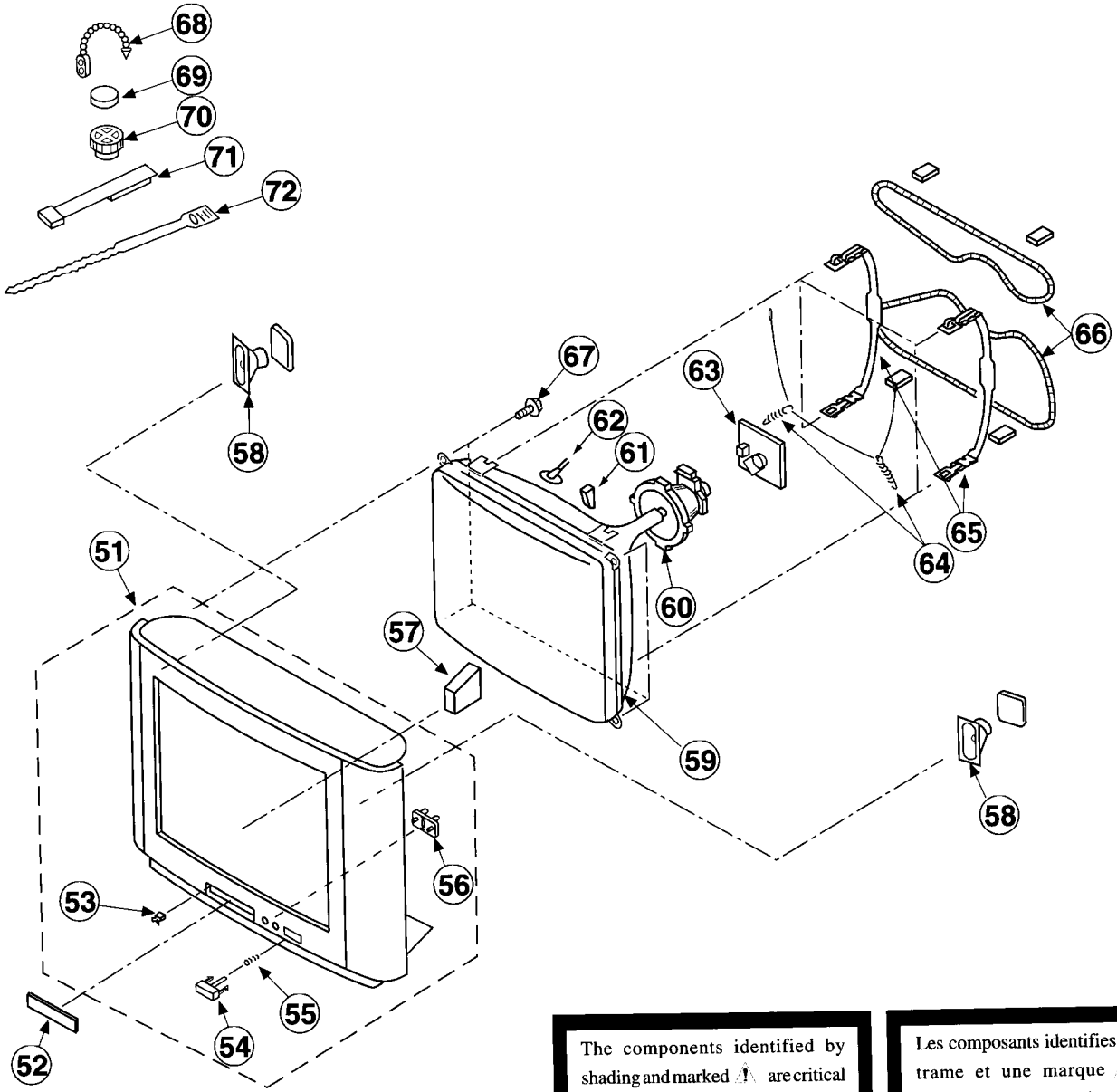


6-1. CHASSIS



6-2. PICTURE TUBE



The components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.